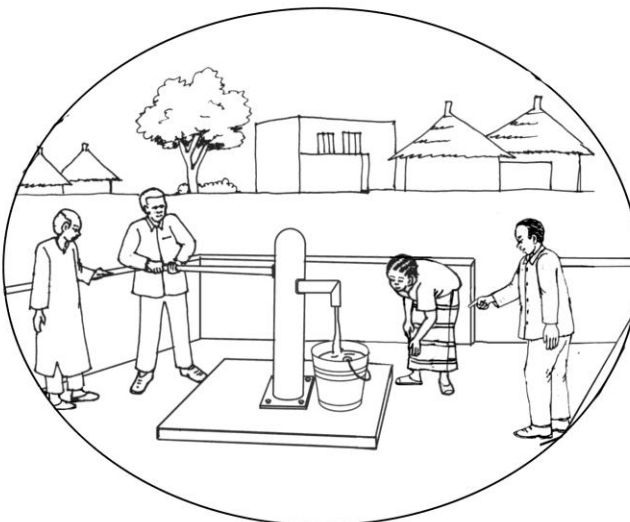
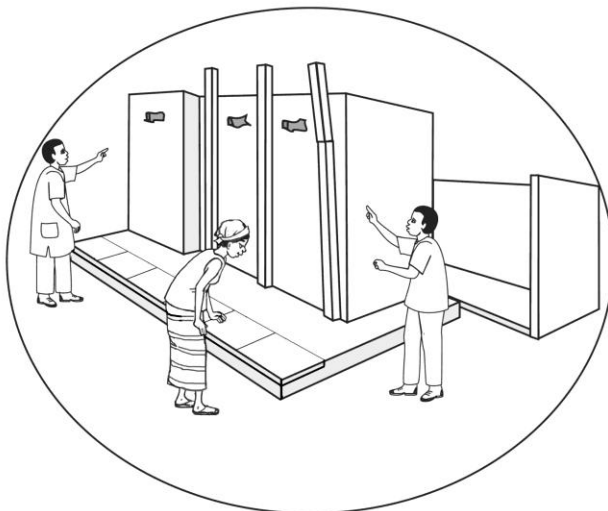
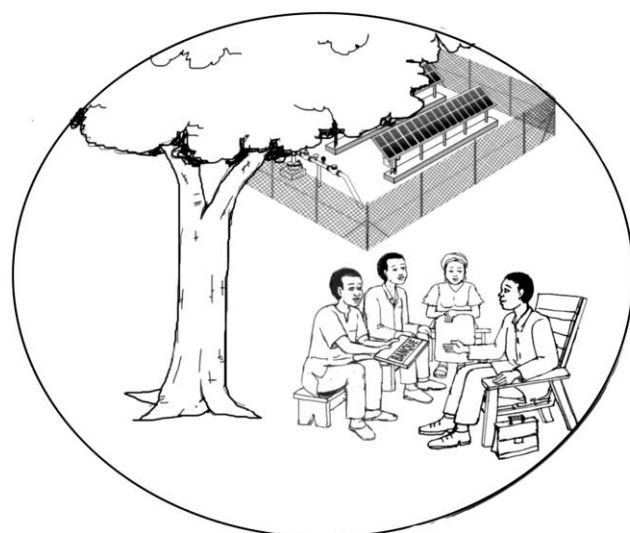
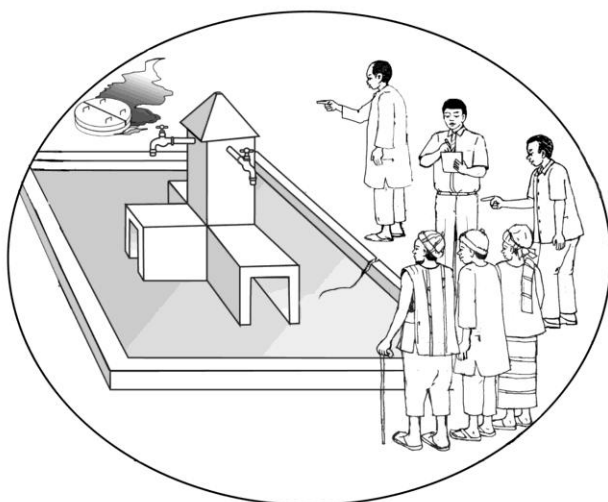




**Monitoring checklists:
Water points and latrines**

Ref.: 2012-02-E



**GWJ Technical Series:
Hardware Quality**

Table of contents

About this series	3
Acknowledgements	4
About the Global Water Initiative	4
1. BOREHOLE WITH HAND/FOOT PUMP: MONITORING CHECKLIST	7
2. IMPROVED HAND-DUG WELL WITH PULLEY: MONITORING CHECKLIST	14
3. SOLAR POWERED MECHANIZED SYSTEM: MONITORING CHECKLIST.....	21
4. WATER POINT MANAGEMENT: MONITORING CHECKLIST.....	30
5. LATRINE: MONITORING CHECKLIST.....	35
BIBLIOGRAPHY	40

About this series

The **GWJ Technical Series: Hardware Quality for Sustainable Water & Sanitation** is a Global Water Initiative tool that was developed in West Africa by Catholic Relief Services (CRS) and Sahel Consulting as a response to common difficulties in rural water & sanitation projects.

Each document in the series addresses a particular aspect of technology choice, design, build and maintenance. All these aspects are important in delivering a reliable and lasting community water/sanitation resource within an increasingly decentralised context.

We aim to influence those with the power and responsibility to get water and sanitation to the rural poor.

We also want to influence the communities themselves to become proactive and break away from their past role as passive beneficiaries.

The tools have been designed and field tested for use with communities, development workers, commune leaders and government technical services. They focus specifically on gaining an informed understanding that will lead these key decision makers to choosing the correct technology, supervising construction to assure quality, putting in place correct operation and maintenance systems, and assuring that revenue generated is adequate to keep that service going.

These tools are not a method in themselves, they presume that anyone using them is already engaged in a robust participatory process.

The **GWJ Technical Series: Hardware Quality for Sustainable Water & Sanitation** includes:

A practical guide for building a simple pit latrine	ref.: 2011-01-E
Assuring Quality: an approach to building long-lasting infrastructure in West Africa	ref.: 2012-01-E
Monitoring checklists : water points and latrines	ref.: 2012-02-E
Community monitoring of borehole construction: a training guideline	ref.: 2012-03-E
Contracting for water point construction: Provisional and final acceptance forms	ref.: 2012-04-E
The essential steps before handing-over a borehole (with hand pump) to the community	ref.: 2012-05-E

Community monitoring during the construction of a gravity-fed, solar powered water supply: a training guideline ref.: 2012-06-E

Making the right choice: comparing your rural water technology options ref.: 2012-07-E

Please use any of the documents freely. They can be downloaded from <http://www.crsprogramquality.org/publications/tag/water-manualsuser-guides>.

We would be most interested to receive feedback from you on the usefulness of this material.

The series is published in French and English. If you translate the material into another language please send a copy to lambert.nikiema@crs.org, jeanphilippe.debus@crs.org, suecavanna@sahelconsulting.org.uk.

Acknowledgements

This document was developed by Lambert Zounogo P. NIKIEMA (CRS), Sue CAVANNA (Sahel Consulting), and Jean-Philippe DEBUS (CRS), the Hardware Quality team of the Global Water Initiative (GWI) in West Africa.

GWI project staff from all five GWI countries contributed ideas during the early development stages, and most importantly tested the material in the field. We are indebted to them.

The generous support and encouragement of the Howard G. Buffett Foundation has made this publication possible.

Illustrations:

- Y. Parfait BONKOUNGOU, Ouagadougou, Burkina Faso (polyart15@yahoo.fr);
- François Xavier COULIBALY, Toussiana, Burkina Faso (illus_faso@yahoo.fr).

About the Global Water Initiative

The Global Water Initiative (GWI), supported by the Howard G. Buffett Foundation addresses the challenge of providing long term access to clean water and sanitation, as well as protecting and managing ecosystem services and watersheds, for the poorest and most vulnerable people dependent on those services. Water provision under GWI takes place in the context of securing the resource base and developing new or improved approaches to water management, and forms part of a larger framework for addressing poverty, power and inequalities that particularly affect the poorest

populations. This means combining a practical focus on water and sanitation delivery with investments targeted at strengthening institutions, raising awareness and developing effective policies.

The Regional GWI consortium for West Africa includes the following partners:

- International Union for the Conservation of Nature (IUCN)
- Catholic Relief Services (CRS)
- CARE International
- SOS Sahel (UK)
- International Institute for Environment and Development (IIED).

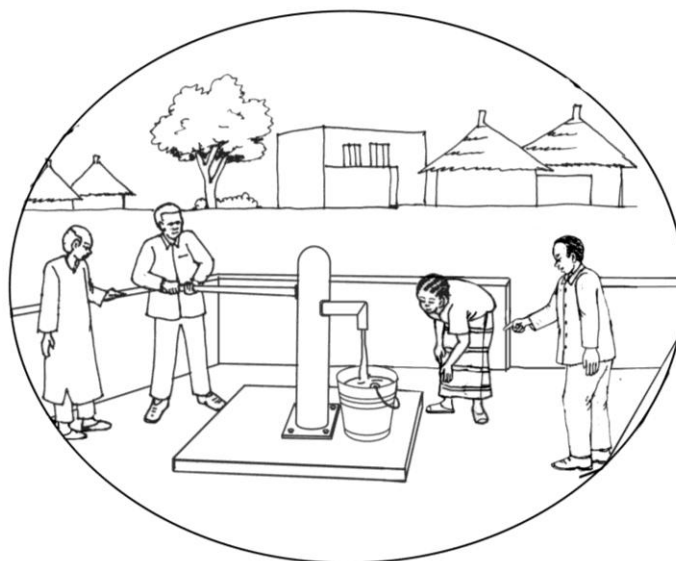
GWI West Africa covers five countries: Burkina Faso, Ghana, Mali, Niger and Senegal. Some activities also take place around the proposed Fomi dam in Guinea. For more information on the GWI, please visit: www.globalwaterinitiative.com.

The following check-lists have been developed to monitor water and sanitation infrastructure development in rural communities.

They can be used as a training guide for community management committees and water point supervisors.

1. BOREHOLE WITH HAND/FOOT PUMP: MONITORING CHECKLIST

Nature of the monitoring	Frequency
Water point sanitary assessment	Monthly
State and functioning of the pump	Monthly
Water quality	Monthly
User behaviour	Monthly
Capacity to monitor and maintain the water point.	Quarterly



1. Water point sanitary assessment

1.1 Location

	Yes	No	Action to take if "Yes"
1 Is there a latrine within 30 m of the water point?			Remove the latrine
2 Is there a manure pit or a rubbish dump within 30 m of the water point?			Remove the manure pit/rubbish dump
3 Is there an animal enclosure within 30 m of the water point?			Relocate the animal enclosure to more than 30 m away
4 Are there any chemicals (waste oil, petrol, solvent) within 50m of the water point?			Remove these chemicals
5 Is the fencing around the water point inadequate, allowing animals in?			Raise users' awareness and request them to build the protection fencing.

1.2 Condition of the Pump

	Yes	No	Action to take if "Yes"
6 Is the pump unsteady?			Replace the missing screw nuts / tighten the screw nuts
7 Is the pump broken?			Repair or replace the broken part
8 Is there any pooling of water on the concrete floor around the hand-pump?			Verify the condition of the joints and the hand-pump (pump body pierced due to rust?)

1.3 Condition of the concrete slab and of the overall drainage of water away from the water point

	Yes	No	Action to take if "Yes"
9 Is the concrete floor less than 1m wide around the hand-pump?			Repair the concrete floor or build a new one.
10 Are there any cracks in the concrete floor around the hand-pump?			Repair the cracks.
11 Are there breakages or cracks in the drainage channel?			Repair the breakage or cracks.

BOREHOLE FITTED WITH HAND/FOOT PUMP

	Yes	No	Action to take if "Yes"
12 Is there stagnant water on the concrete slab or in the drainage channel?			Clean up, scour the concrete floor / drainage channel Redo the concrete slab slope if necessary.
13 Is there stagnant water around the water point?			Fill in the holes around the water point superstructure and improve the drainage in the surroundings of the water point.
14 Is the concrete slab or the drainage channel dirty?			Clean up and scour the concrete floor or the drainage channel

1.4 Condition of the water-trough and the soak-away pit.

	Yes	No	Action to take if "Yes"
15 Is the water-trough overflowing?			Clean up the water-trough, unclog the drainage pipe.
16 Is the soak-away pit overflowing?			Empty the soak-away pit, remove the sediments and replace the rough stones. Raise users' awareness on a proper management of the water (avoid wasting the water).

	Yes	No	Observation
TOTAL / 16			If the number of "Yes" is high the sanitary risk is high for this water point.

Note: Recommended frequency of the water point sanitary Condition monitoring: Monthly.

2. State and functioning of the pump

	Yes	No	Action to take if "Yes"
1 Is any part of the pump missing?			Supply the missing part
2 Are there bolts / screw nuts which are not in place or well tightened?			Supply the missing bolts and or screw nuts and tighten those which are not well tightened.

BOREHOLE FITTED WITH HAND/FOOT PUMP

	Yes	No	Action to take if "Yes"
<p>3 Is the pump leaking?</p> <p><u>Leakage test:</u> (to be conduct after stopping the pump for 30 minutes) If more than 5 pump strokes are necessary before the water comes out of the pump there is a leakage that requires attention.</p>			<p>Look for the cause → Call for the local pump technician.</p> <p>It is possible that the inlet valve is worn or that there is leakage around the pipes connections.</p>
<p>4 Has the yield decreased?</p> <p><u>Yield test:</u> Begin the yield test immediately after the pump has been in continuous use. Give 40 pump strokes during approximately 1 minute while collecting the water in a bucket: the quantity of the water collected must be more than 10 litres.</p>			<p>→ Call for the local pump technician.</p> <p>The piston valve, the piston joint or the cylinder may be worn out.</p>
<p>5 Is the pump action heavy? More heavy than before?</p>			<p>→ Call for the local pump technician.</p> <p>Check that there is no mud in the pump cylinder or anything else that could block the pumping mechanism.</p>
<p>6 Is the pump making abnormal noises?</p>			<p>→ Call for the local pump technician.</p> <p>Find out why (sometimes a part can be worn out or damaged). Make the necessary repair.</p>
<p>7 Abnormal sideways "play" in the pump handle action?</p>			<p>→ Call for the local pump technician.</p> <p>Find the reason (sometimes a part can be worn or damaged). Make the necessary repair.</p>
<p>8 Are there other abnormalities?</p>			<p>Find out the reason. Make the necessary repair.</p>
<p>9 In the pump broken down (not functioning) ?</p>			<p>Look for the reason and repair the pump → Call for the local pump technician</p>

Note: Recommended frequency to monitor the pump working state: Monthly.

3. Water quality

Note: The following tests are not scientific quality tests of water quality but help to identify potential problems.

	Yes	No	Action to take if "Yes"
1 Is the water turbid?			Inform the commune and technical services in charge of drinking water supply.
2 Does the water have an odour?			Inform the commune and technical services in charge of drinking water supply.
3 Does the water have an abnormal taste?			Inform the commune and technical services in charge of drinking water supply.

Note: Recommended frequency of Water quality monitoring: Monthly.

4. User behaviour

	Yes	No	Action to take if "Yes"
1 Is the pump badly handled?			Inform / sensitize users and water point managers on the link between the pump use and its durability.
2 Is there water wastage (e.g.: water overflowing from containers)?			Invite water point management committee to sensitize users on good management of water and the pump.
3 Are there other actions spoiling the superstructure? (e.g.: bicycles leaning against the walls of the superstructure)			Invite the water point committee to include this point in the water point use rules, and to toughen up on their inspection.
4 Are water containers generally dirty?			Necessity of a reminder on hygiene.
5 Are the containers generally uncovered (or cans not having a cork)?			Necessity of a reminder on hygiene.

Note: Recommended frequency of water point user behavior monitoring: Monthly.

5. Capacity to monitor and maintain the water point.

	Yes	No	Action to take if "No"
1 Is there a water point manager at the water point all time that the pump is in use?			Request the community to appoint water point managers.
2 Has he/she been well trained?			Organize training for the water point manager.
3 Is there at least one pump mechanic in the local area able to maintain the pump periodically?			Get the community to identify at least one person to be the pump mechanic and provide training for this person.
4 Is there a water point maintenance programme?			Invite water point managers to put in place a maintenance programme.
5 Is there a record of any maintenance on the pump?			Get the pump managers to use such a record
6 Does the pump manager know how to conduct a leakage test?			Teach him to do the leakage test.
7 Are the correct pump maintenance tools (keys, etc.) available?			Provide the necessary tools or suggest that the water point managers buy them.
8 Is there enough money available (be exact on the amount) and in a secure place ready for the repairs?			Work with the water point manager to put in place a water payment system and make sure that money collected will be looked after securely.

Note: Recommended frequency for monitoring the capacity of the community to monitor and maintain the water point: every 3 months.

Additional points on management

If there is a maintenance schedule for the water point (pump), describe it:

BOREHOLE FITTED WITH HAND/FOOT PUMP

How many times has the pump broken down since the last monitoring? What have been the nature of the failures and how much time has it taken to repair the pump (to have it functional again) for each case?

What is the system of obtaining the spare parts?

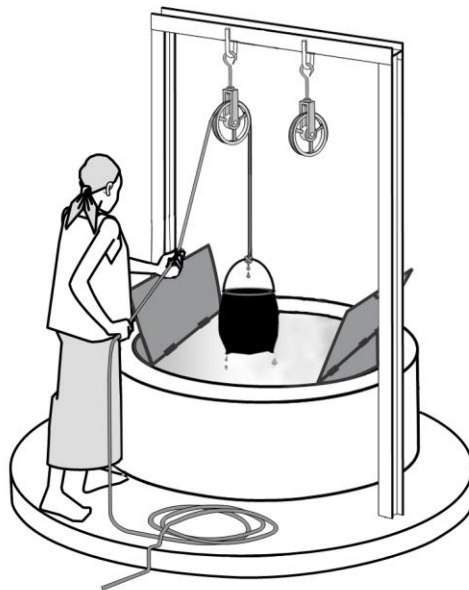
What is the actual amount of money available (in a bank) for the water point maintenance and repairs?

What was the original agreed annual amount that the community would contribute to assure enough money is set aside for maintenance and repairs?

Is the amount being collected enough to meet this target?

2. IMPROVED HAND-DUG WELL WITH PULLEY: MONITORING CHECKLIST

Nature of the monitoring	Frequency
Water point sanitary assessment	Monthly
Condition of the water-drawing equipment and concrete rings (both non-porous and porous filter rings)	Monthly
Well yield and water quality.	Monthly
User behaviour	Monthly
Capacity to monitor and maintain the water point.	Quarterly



Copyright GWI

1. Water point sanitary assessment

1.1 Location

	Yes	No	Action to take if "Yes"
1 Is there a latrine within 30 m of the water point?			Remove the latrine
2 Is there a manure pit or a rubbish dump within 30 m of the water point?			Remove the manure pit / rubbish dump
3 Are there any animals' enclosures within 30 m of the water point?			Relocate the enclosure beyond 30 m of the water point.
4 Are there any chemicals (waste oil, petrol, solvent) on or around the water point (within 50m)?			Remove these chemicals
5 Is the fencing around the hand-pump inadequate, allowing animals in?			Raise users' awareness and request them to build protective perimeter fencing

1.2 Drawing water

	Yes	No	Action to take if "Yes"
6 Could the bucket infect the water?			Establish rules for the use and storage of the buckets in order to prevent the contamination of the water in the well.
7 Could the rope used be a source of contamination of the water?			Find a system to prevent any contaminated rope (rope dragging on the ground) from entering the well.
8 Is the well without a cover?			Put in place a system to cover the well when it is not used.

1.3 Condition of the headwall, the concrete floor and the drainage.

	Yes	No	Action to take if "Yes"
9 Are there breakages or cracks on the headwall enabling the water to flow back from the concrete floor into the well?			Repair the breakage or the cracks.
10 Is the concrete floor less than 1m wide around the headwall?			Repair the concrete floor or build it to be at least 1 m wide all around.

IMPROVED HAND-DUG WELL WITH PULLEYS

	Yes	No	Action to take if "Yes"
11 Are there breakages or cracks on the concrete floor enabling water to infiltrate into the soil?			Repair the breakage or the cracks.
12 Are there breakages or cracks on the drainage channel?			Repair the breakage or the cracks.
13 Is there stagnant water on the concrete floor or in the drainage channel?			Clean up and scour the concrete floor or the drainage channel Re-do the concrete floor slope if necessary.
14 Is there stagnant water around the water point?			Fill in the holes around the water point superstructure; improve the drainage in the surroundings of the water point.
15 Is the concrete floor (platform) or the drainage channel dirty?			Clean up and scour the concrete floor or the drainage channel
16 Is the fencing around the well broken, allowing animals into the well enclosure?			Reconstruct the well enclosure.

1.4 Condition of the water-trough and of the soak-away pit.

	Yes	No	Action to take if "Yes"
17 Is the water-trough overflowing?			Clean up the water-trough and unclog the outlet pipe.
18 Is the soak-away pit overflowing?			Empty the soak-away pit, remove the sediments and replace the rough stones. Sensitize the users for better management of the water (avoid wasting the water).

	Yes	No	Observation
TOTAL / 18			The higher the number of "Yes", the higher is the sanitary risk to the water point.

Note: Recommended frequency of the water point sanitary Condition monitoring: Monthly.

2. State of the water-drawing equipment, and of the concrete rings (both non-porous and porous filter rings)

	Yes	No	Action to take if "Yes"
1 Is the drawing frame broken or not usable?			repair / replace it
2 Is there a lack of pulley or is the pulley not working (broken)?			Repair the pulley or manufacture a new one.
3 Are parts of the concrete ring lining broken away?			It is necessary to repair these parts.
4 Are there signs of damage (cracks) to the concrete ring lining?			Fill in the cracks.
5 Is the porous filter ring tilted?			It is necessary to rehabilitate these parts.

Note: Recommended frequency of the condition of the drawing equipment and concrete ring monitoring: monthly

3. Well yield and water quality.

Note: The following are not scientific quality tests of the water but help to identify potential problems.

	Yes	No	Action to take if "Yes"
1 Has the water rest level diminished (abnormally) compared to the time the well was newly constructed?			Clean out any sediment from the well and, if necessary, clean the porous filter ring (open the blocked holes). The intervention of a specialist is necessary. The deepening of the well must be undertaken if the water rest level has significantly dropped and if cleaning out the bottom of the well and the porous filter rings have not increased the water rest level.
2 Is the water turbid?			Clean out the well / develop the well to an adequate standard

IMPROVED HAND-DUG WELL WITH PULLEYS

	Yes	No	Action to take if "Yes"
3 Does the water have an odour or smell bad?			Undertake disinfection of the water within the well with chlorine or bleach, then empty the well completely after the contact period. Make sure that there is no dead animal inside the well. If there is, remove it and fully disinfect the well as above.

Note: Recommended frequency of well yield and water quality monitoring: monthly.

However, there can be occasional alerts on the water quality (odour, turbidity).

4. User behaviour

	Yes	No	Action to take if "Yes"
1 Is there water wastage (e.g.: water overflowing from containers) or water pooling around the well?			Invite water point management committee to sensitize users on good management of water.
2 Are there other actions that spoil the superstructure (e.g.: bicycles lying on the walls of the superstructure).			Invite the water point management committee to include this point in the water point use rules, and to toughen up on their inspection.
3 Are water containers generally dirty?			Necessity of a reminder on hygiene.
4 Are the containers generally uncovered (or cans without a cork)?			Necessity of a reminder on hygiene.

Note: Recommended frequency of the water-point users behavior monitoring: Monthly.

5. Capacity to monitor and maintain the water point.

	Yes	No	Action to take if "No"
1 Is there a water point manager?			Guide the community to put in place (a) water point manager(s).
2 Has the water point manager been well trained?			Organize training for the water point manager.

IMPROVED HAND-DUG WELL WITH PULLEYS

	Yes	No	Action to take if "No"
3 Is there a person in charge of the periodic maintenance of the well (minor repairs, well interior inspection, concrete ring cracks filling in)?			Ask the community to identify a person in charge of the maintenance of the well, and to provide training for this person.
4 Has the person in charge of the maintenance of the well been well trained?			Organize the training of the person in charge of the maintenance of the well.
5 Is a water point maintenance schedule applied?			Invite water point managers to adopt / apply a maintenance schedule and follow it rigorously.
6 Is there a chart to monitor/record any maintenance on this water point?			Ask the water point managers to use this kind of chart and to check the chart at every 3 months meeting.
7 Are the correct well maintenance tools (rope, helmet, trowel, bucket, security belt, etc.) available?			Provide the necessary tools or ask the water point managers to buy them.
8 Is there enough money available (be exact on the amount) and in a secure place ready for the repairs?			Work with the water point manager to put in place a water payment system and make sure that the money collected will be looked after seriously.

Note: Recommended frequency of the monitoring of the capacity of the community to monitor and maintain the water point: every three months.

Additional points on management

If there is a maintenance schedule for the water point, describe it:

IMPROVED HAND-DUG WELL WITH PULLEYS

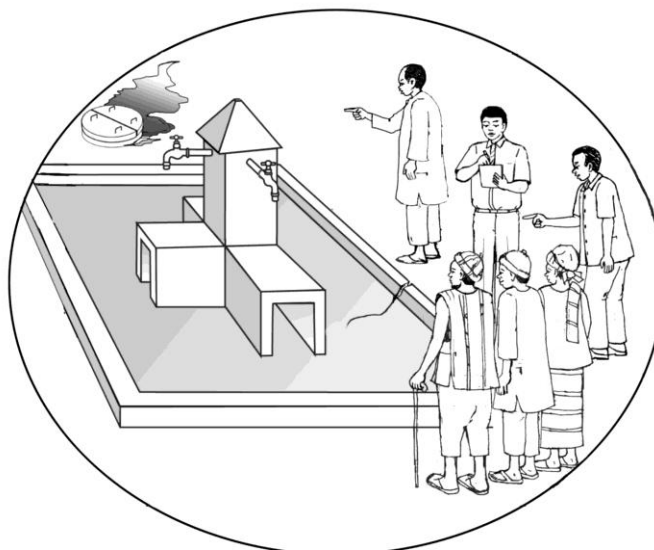
What is the actual amount of money available (in a bank) for the water point maintenance and repairs?

What was the original agreed annual amount that the community would contribute to assure enough money is set aside for maintenance and repairs?

Is the amount being collected enough to meet this target?

3. SOLAR POWERED MECHANIZED SYSTEM: MONITORING CHECKLIST.

Nature of the monitoring	Frequency
Water point (borehole) sanitary assessment	Monthly
State of the solar generator	Monthly
State of the water tank, the public stand-pipes, and other water drawing points	Monthly
State of the valves and valves chambers	Monthly
Water quality and quantity	Monthly
User behaviour	Monthly
Capacity to monitor and maintain the water point	quarterly



1. Water point (borehole) sanitary assessment

1.1 Location of the borehole

	Yes	No	Action to be taken if "Yes"
1 Is there a latrine within 30 m of the borehole?			Remove the latrine.
2 Is there a manure pit or a rubbish dump within 30 m of the borehole?			Remove the manure pit or rubbish dump.
3 Is there an animal enclosure within 30 m of the borehole?			Relocate the animal enclosure to beyond the 30m perimeter
4 Are there any chemicals (petrol, waste oil, solvent) on or around the water point (within 50m)?			Remove these chemicals
5 Is the borehole in an area liable to flooding?			Build a raised platform around the borehole headwalls to a height above the maximum flood levels.

1.2 State of the concrete headwall of the borehole and of the drainage around the borehole.

	Yes	No	Action to be taken if "Yes"
6 Can the concrete headwall of the borehole be flooded (is the borehole area liable to flooding)?			Heighten the borehole headwall and casing to avoid being flooded.
7 Are the screw nuts fixing the plate of the borehole headwall missing or not well tightened?			Replace any missing screw nuts / tighten the screw nuts
8 Is there any way in which water could get from the concrete floor into the borehole (due to cracks in the concrete, etc.)?			Mend the cracks.
9 There is no concrete floor or the concrete floor is less than 1m wide all around the borehole?			Repair the concrete floor/ construct it to meet the required minimum width of 1m around the borehole.
10 Are there cracks or breakages in the concrete floor around the borehole?			Repair the cracks or breakages.

SOLAR POWERED MECHANIZED SYSTEM

	Yes	No	Action to be taken if "Yes"
11 Is there any stagnant water or a possibility for water to pool around the borehole?			Fill in the holes around the borehole, improve the drainage in the surroundings of the borehole.
12 Are there leaks on the piping on the borehole headwall?			Urgently organize for the plumber to repair these leaks.

1.3 State of the pipe network and the water tank.

	Yes	No	Action to be taken if "Yes"
13 Are there the pipes leaking? (noticeable by wet patches on the network path)			Urgently organize with the plumber to repair these leaks.
14 Are there leaks on the special parts (valves, etc.)?			Urgently organize with the plumber to repair these leaks.

	Yes	No	Observation
TOTAL / 14			The higher the number of "Yes", the higher is the sanitary risk for the water point.

Note: Recommended frequency for the monitoring of the water-point sanitary condition: Monthly.

2. Condition of the solar generator.

	Yes	No	Action to be taken if "Yes"
1 Is there grass growing under the solar panels?			Remove all plants from under the solar panel and around the enclosure of the solar panels.
2 Does water pool around the solar panels allowing grass to grow?			Make an embankment around the solar panels / enclosure
3 Are the solar panels dirty (dusty)?			Explain to the managers that this has a negative consequence on water production and ask them to plan daily cleaning of the solar panels.

SOLAR POWERED MECHANIZED SYSTEM

	Yes	No	Action to be taken if "Yes"
4			Are the solar panels cleaned with a dry or dirty cloth / dirty water / or with caustic products? Inform the managers that the cleaning of the solar panels must be done with a clean cloth, clean water without abrasive particles and without using caustic products.
5			Are the solar panels covered / shaded at any moment during the day (by trees, houses, etc.)? Remove anything casting shade on the solar panels.
6			Is any solar panel broken or damaged? Inform the competent technical structure (installer, commune, technical service, etc.) in order that measures (reorganization of the panels' electric connection) can be taken while waiting for the replacement of the broken or damaged panels.
7			Is the enclosure of the panels damaged? permitting access of animals/unauthorized persons to the panels enclosure Ensure the enclosure is rapidly repaired.
8			Is the entry gate unlocked or nonexistent? Install a padlock or door that can be locked.
9			Are the solar panels stand foundations sinking into the ground (causing the panels stand to shift → risk of panel breakage)? Urgently inform the competent structure (installer, commune, technical service, etc.) in order that measures (panels dismantling) while waiting for the reconstruction of the foundations.
10			Are the electrical wires connection boxes not waterproof or opened? Close the wires connection boxes that are opened / inform the competent structure (installer, commune, technical service, etc.) about the non waterproof boxes.
11			Are there wires hanging loose and are not held in place? Inform the competent structure (installer, commune, technical service, etc.).
12			Are any wires cut? Urgently Inform the competent structure (installer, commune, technical service, etc.)
13			Are there wires connections outside of connexion boxes? Inform the competent structure (installer, commune, technical service, etc.) and ask for this to be corrected (change the wires to assure all the connections are inside the connexion boxes).

Note: Recommended for monitoring the frequency of the solar generator condition: monthly.

3. Condition of the water tank, the public stand-pipes and other water drawing points.

	Yes	No	Action to be taken if "Yes"
1 Are there leaks on the water tank?			Mend the water tank.
2 Are there leaks in the pipe system (drive pipes, delivery pipes, evacuation pipe, overflow system)?			Plan the repairs with the plumber.
3 Are there valves (under the water tank) that can't be turned easily or can't be turned at all?			Urgently plan the valves maintenance, and foreseen in the future a periodical maintenance program of the valves.
4 Is the stand pipe platform broken or cracked?			Repair the cracks or breakages.
5 Are there any taps broken?			Plan to change the taps.
6 Are there any leaking taps?			Plan the repair with the plumber.
7 Are there leakages on the aerial pipe (steel zinc-coated pipe)?			Plan with the plumber the repair of the leakages.
8 Is there stagnant water around the stand pipe or around any other water drawing point?			Fill in the holes around the water drawing points and improve the drainage in the surroundings.
9 Do any stand pipes or water-drawing points have blocked soak-away pits (and the water overflowing)?			Empty the soak-away pit, remove the sediments and replace the rough stones. Sensitize the users for better management of the water (avoid wasting the water).

NB: Recommended frequency of monitoring the water tank, the stand pipes, and other water drawing points: monthly.

4. Condition of the valves and valves chambers.

	Yes	No	Action to be taken if "Yes"
1 Are the valves covered by soil and buried?			Clear away the soil and make the valves visible, check that the valves can be turned on/off.
2 Are the valves concrete inspection chambers damaged?			Plan to reconstruct the valve chambers.
3 Are the covers slabs of the inspection chambers broken?			Plan to rebuild these cover slabs.
4 Are there any valves that can't be turned easily or can't be turned at all?			Urgently plan the intervention of valve maintenance and foreseen in the future a periodical maintenance program of the valves.

Note: Recommended frequency of monitoring valves and valves inspection chambers: monthly.

5. Water quality and quantity.

Note: The following are not scientific quality tests of the water but help to identify potential problems.

	Yes	No	Action to be taken if "Yes"
1 Is the water turbid? (not clear)			Inform the commune and the technical services in charge of drinking water supply.
2 Does the water have an unusual smell?			Inform the commune and the technical services in charge of drinking water supply.
3 Does the water have an abnormal taste?			Inform the commune and the technical services in charge of drinking water supply.
4 Has the average quantity of water delivered daily diminished since the last monitoring visit?			Inform the relevant structure (installing contractor, commune, technical service, etc.) about the problem.

Note: Recommended frequency for monitoring water quality and quantity: monthly.

6. Users behaviour

	Yes	No	Action to be taken if "Yes"
1 Are the taps badly handled?			Inform / sensitize users and water point managers on the link between the handling of taps and their durability.
2 Is there water wastage (e.g.: water overflowing from containers)?			Ask water point management committee to sensitize the users on good management of the water.
3 Is there damage to the infrastructures (the public stand pipes for example)?			Ask the water point committee to include this matter in the water-point use rules, and to make more thorough the inspection.
4 Are containers generally dirty?			Necessity of a reminder on hygiene.
5 Are the containers generally uncovered (or not having a mean to close them)?			Necessity of a reminder on hygiene.

Note: Recommended frequency of the water point users behavior monitoring: Monthly.

7. Capacity to monitor and maintain the water point.

	Yes	No	Action to be taken if "No"
1 Is there a guard for the solar generator?			Call for a meeting with the community to discuss about the risk of leaving the solar system unguarded and encourage them to take a decision.
2 Is there a guard house near to the solar generator for the guard?			Call for a meeting with the community to discuss about the risks and the decisions to take.
3 Is there a person in charge of daily cleaning/inspecting the solar panels?			Work with the community to identify /hire and train a person who will be in charge of this responsibility.
4 Is the person in charge of cleaning/inspecting the solar panels well trained?			Plan a training for him/her.

SOLAR POWERED MECHANIZED SYSTEM

	Yes	No	Action to be taken if "No"
5 Is there a manager at each stand pipe?			Work with the community to put in place managers at each stand pipe and to provide the training for them.
6 Is there a person in charge of monitoring the state of the water network (water tank, valves, taps, pipes, etc.)?			Work with the community to put in place a monitoring system of the water network.
7 Is there a periodic recording of the water meter both at the pump and at each of the stand-pipes?			Work with the community to organize this data collection.
8 Is there a water system maintenance programme and is it in use?			Invite the water system managers to adopt and / or apply a maintenance programme.
9 Is there a chart to monitor any repairs on the equipment (solar generator, inverter, water tank, valves, etc.)?			Ask the managers to use this kind of chart at all times.
10 Is there money available for repairs (what is the exact amount) and is it kept in a secure place?			Work with the water point managers to put in place a water payment system and to keep the collected money safely.
11 Does the village know which technical skills are needed and who to contact (name of structure, telephone number, etc.) if there is a breakdown on the water system?			Work with the community to clarify this point and to make this information available for all.

Note: Recommended frequency of monitoring the capacity of the community to monitor and maintain the water point: every quarter.

Additional points on management

If there is a maintenance schedule for the water supply system, describe it:

What is the system of obtaining the spare parts?

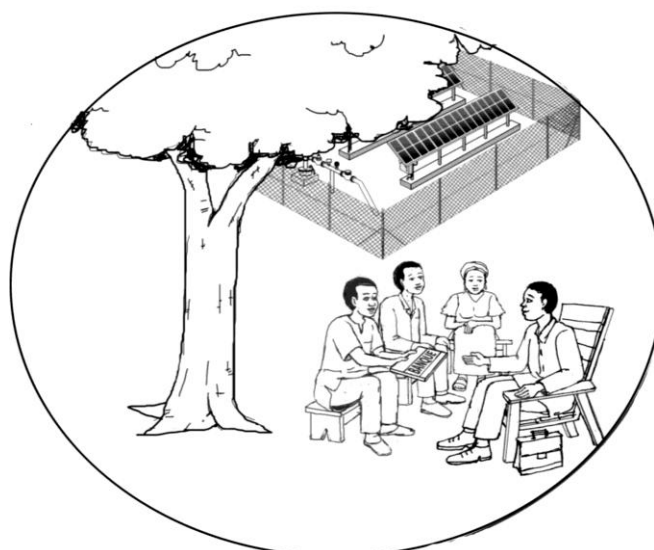
What is the actual amount of money available (in a bank) for the water supply system maintenance and repairs?

What was the original agreed annual amount that the community would contribute to make sure enough money is set aside for maintenance and repairs?

Is the amount being collected enough to meet this target?

4. WATER POINT MANAGEMENT: MONITORING CHECKLIST.

Nature of the monitoring	Frequency
Existence and functioning of the management body	Annually
Equity	Annually
Good governance	Annually
Capacity to manage	Annually
Efficiency of the management	Half-Yearly



1. Existence and functioning of the management body.

	Yes	No	Action to be taken if “No”
1 Are there persons in charge of the water-point management?			Organize the community to choose their water point managers.
2 Does the water point management committee have rules and regulations?			Work with the community and the water-point committee to develop rules and regulations.
3 Does the management committee meet periodically (and how often) to assess the water-point management and to take decisions?			Sensitize the committee to organize periodic meeting to assess the water point situation.

Note: Recommended frequency of the monitoring of the management body: Annually.

2. Equity.

	Yes	No	Action to be taken if “No”
1 Are there water-point access rules: who can access, how and when?			Work with the community and the management committee to elaborate water-point access rules.
2 Were the water point access rules developed in a participative manner with all the community structures?			Work with the community to re-examine if the access rules exclude any disadvantaged groups.
3 Are the water-point access rules applied?			Work with the community to identify the problems and find solutions.
4 No rule is contested by the users?			Work with the community to identify the problems and find solutions.
5 Is the management team composed of representatives of all the different user groups?			Work with the community to re-examine the composition of the water point management committee to allow each user group to be represented.
6 Are there sanctions against those who do not pay their water charge?			Work with the community to assure that all the water-point access rules are applied equally to all parts of the community.

Note: Recommended frequency of monitoring the equity of the water-point management: annually.

3. Good governance

	Yes	No	Action to be taken if “No”
1 Is there a periodic election of the water point management team?			Work with the community to make sure that election/re-election of the water point management committee are carried out in accordance with the rules as outlined in the water supply rules and regulations at community level.
2 Is there clear information available on the expenses incurred by the committee on behalf of the community water supply?			Require that the management committee must document the different expenses in an agreed format.
3 Does the management committee make regular financial report to the community?			Work with the community for a periodic financial statement meeting (this point must be included in the rules and regulations).
4 Are reporting documents (financial and narrative) available?			Work with the community to put this reporting system in place.
5 Are there clear/agreed processes for expense authorisation and execution?			Work with the community to identify and apply expense authorization processes and to include the authorization process in the water-point management rules and regulations.
6 Is the money collected in a secure place?			Work with the community to keep the money in a dedicated bank account which holds only the money of this community water supply.

Note: Recommended frequency of monitoring the governance within the water point committee: annually.

4. Capacity to manage

	Yes	No	Action to be taken if “No”
1 Does the water point committee know the approximate prices of the water point equipment spare parts?			Organize an information meeting on the cost of spare parts for the water-point.

	Yes	No	Action to be taken if “No”
2 Is there an annual budget with an allowance for depreciation of the spare parts and daily management expenses?			Work with the community to elaborate the annual budget of the water-point taking into account the spare part replacement and recurrent costs.
3 Has the committee clearly identified how they will mobilize funds for the water point maintenance and repairs?			Work with the community in a participative manner to identify the way they will pay for the water.
4 Is there a periodic maintenance programme for the water-point? (describe it)			Work with the community and the water point managers to identify a periodic maintenance schedule for the water point and who will do what and when.
5 Has the money collection plan been followed? Who does not pay his/her water bill?			Work with the water point committee to develop a monitoring system of individual household payment.
6 Does the water point committee know qualified repairers in their area?			Ask the water point committee to search for information on qualified repairers and make contact numbers available.
7 Are the financial and narrative reports existent and well kept?			Invite water point managers to find an adequate system to maintain regular records and keep them safely.

Note: Recommended frequency of the monitoring of the water point committee capacity to manage: annually.

5. Efficiency of the management

	Yes	No	Action to be taken if “Yes”
1 Does the water point breakdown frequently?			Get a specialist to re-examine the maintenance system and the system of supervision.
2 Are the breakdowns repaired after a long time?			Re-examine the system of identifying the need for repairs and getting the repairs done quickly
3 Is the water point in a poor condition (pump in a bad condition, cracks on the concrete floor, etc.)?			Work with the community to re-examine the water point maintenance system.

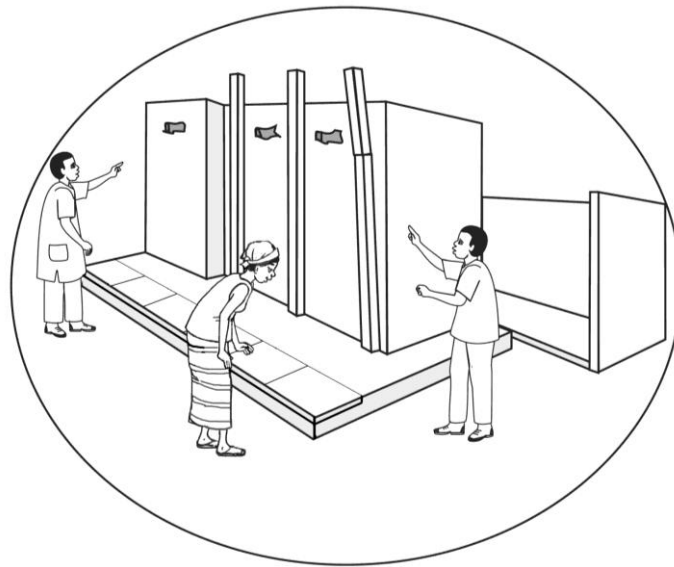
	Yes	No	Action to be taken if “Yes”
4 The money in the bank is less than what was planned and agreed and is not enough for the expected maintenance & repair costs			Work with the community to evaluate the situation and to take the adequate decisions to assure that the funds collected will be enough to cover the maintenance and repair costs.

Note: Recommended frequency of monitoring of the efficient of the water point management committee is: half-yearly.

Precision on the efficiency of the water point management

<p><u>How many times the pump has broken down since the last monitoring? What have been the natures of the failures and how much time it has taken to repair the pump (to have it functional again) for each case?</u></p>
<p><u>What is the actual amount of money available (in a bank) for the water point maintenance and repairs?</u></p>
<p><u>What was the original agreed annual amount that the community would contribute to assure enough money is set aside for maintenance and repairs?</u></p>
<p><u>Is the amount being collected enough to meet this target?</u></p>

5. LATRINE: MONITORING CHECKLIST.



1. Location

	Yes	No	Action to be taken if "Yes"
1 Is the latrine located in a low-lying zone?			Make an embankment around the latrine to prevent rain water from flooding the pit. If there is much risk of flooding, think of transferring the latrine.
2 Is there any risk of water stagnation around the latrine?			Make an embankment around the latrine
3 Is there any lateral infiltration of water into the pit?			Seek out where there is any lateral infiltration and make these areas impermeable, make embankment around the latrine, etc.)
4 Can you smell the latrine from the house?			If possible, change the location of the latrine and place it beyond the houses so that the dominant winds blow the smell away from the houses.

2. The slab

	Yes	No	Action to be taken if "Yes"
1 The latrine slab is not smooth / it has cracks.			Make the slab smooth or fill the cracks with mortar to allow for easy cleaning of the slab.
2 The latrine slab permits urine to pool.			Correct the slopes on the slab with mortar in order to facilitate the urine to flow towards the defecation hole.
3 The sides of the defecation hole are not smooth.			Smooth the sides of the defecation hole with mortar in order to facilitate the cleaning of faeces that may be found there.

3. Superstructure

	Yes	No	Action to be taken if "No"
1 Does the superstructure permit privacy?			Correct the superstructure construction so that it permits user privacy.

4. Use / maintenance

	Yes	No	Action to be taken if "Yes"
1 Are there a lot of flies?			<p>For the non VIP (Ventilated Improved Pit) latrine, cover the defecation hole after having used the latrine.</p> <p>For a VIP latrine, create the conditions to have semi-darkness in the latrine so that the flies are attracted to the light via the vent pipe.</p>
2 Is there much smell?			<p>Pour ash on the faeces after defecation.</p> <p>For the VIP latrine, assure that the air is circulating correctly (entering into the pit by the slab hole and going out by the ventilation pipe).</p>
3 Is the latrine used as a shower?			Ask the owner to build a separate shower in order to avoid filling his latrine quickly.
4 Is the interior of the cabin dirty (urine on the slab, faeces around or on the defecation hole sides, etc.)?			Ask the family to clean the latrine slab (daily) in order to avoid any contamination.
5 There is no hand washing facility for the latrine?			Sensitize the family on the sanitary risk due to transmission of faeces to food and invite them to put a hand washing facility in place.
6 There is no cover of the slab hole(non-VIP latrine)			Sensitize the family on the importance of the use of a cover over the slab hole as a barrier against the transmission of contamination through flies.

5. Particular considerations for VIP latrine superstructure

	Yes	No	Action to be taken if "Yes"
1 Is there any other opening on the superstructure (apart from door)?			Block these openings.
2 The latrine superstructure does not provide semi-darkness (the time for the eyes to accommodate to the dark is less than 10 seconds)			Create the condition for semi darkness inside the latrine: install a door if it is missing, diminishing the opening of the front door.
3 The door is not placed on the side of the dominant winds.			If possible move the door to the side of the dominant winds.
4 Is the height of the ventilation pipe less than 50 cm above the highest part of the superstructure?			Increase the height of the ventilation pipe so that it will be at least 50 cm higher than the highest part of the superstructure.
5 Does the ventilation pipe have any opening or cracks?			Change the ventilation pipe or block the openings or cracks.
6 Is the diameter of the pipe less than 150 mm?			If possible, change the ventilation pipe (to diameter of at least 150mm. The diameter of the ventilation hole must also be increase to around 150mm).
7 The ventilation pipe is placed to the North			For future new VIP latrine construction, place the ventilation conduct on the equator side of the superstructure (towards the equator in the Sahel the pipe will get a maximum of sun).
8 Is the ventilation pipe not well fixed / loose?			Fix the ventilation pipe (with concrete or mortar) so that it is steady
9 Is the ventilation pipe inclined (not vertical)?			Change the ventilation pipe fixture and position in order that it can be vertical and permit the sun light to reach the pit.

	Yes	No	Action to be taken if "Yes"
9 There is no fly screen on the top of the ventilation pipe.			Place a fly screen on top of the vent pipe to trap and eliminate the flies trying to exit from the pit via the vent pipe.
10 The fly screen has some holes.			Change the fly screen.
11 The fly screen is loose and does not fit tightly on to the ventilation pipe?			Tighten the fly screen so that it fits tightly on to the ventilation pipe.
12 Is there a cover for the latrine pit?			Remove the cover because the air must enter into the pit via the pit hole and flow out via the ventilation pipe.

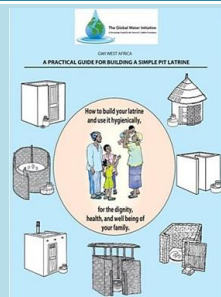
BIBLIOGRAPHY

- ANTEA, 2006, Programme d'application de la réforme du système de gestion des infrastructures hydrauliques d'AEP en milieu rural et semi-urbain (au Burkina Faso), Etude des modalités de gestion et de maintenance des pompes à motricité humaine, Aspects techniques, d'organisation et financiers, Rapport définitif n° A 40861 / A, Janvier 2006.
- ANTEA, 2006, Programme d'application de la réforme du système de gestion des infrastructures hydrauliques d'AEP en milieu rural et semi-urbain (au Burkina Faso), Etude des modalités de gestion et de maintenance des pompes à motricité humaine, Aspects techniques, d'organisation et financiers, Annexe 2 (Protocoles d'entretien et de maintenance et durée de vie des principales pièces) du Rapport définitif n° A 40861 / A, Janvier 2006.
- François Brikké, Maarten Bredero, 2003, Linking technology choice with operation and maintenance in the context of community water supply and sanitation (World Health Organization and IRC Water and Sanitation Centre Geneva, Switzerland, 2003).
- Jean ZOUNGRANA (zoung_jean@yahoo.fr), Promotion de l'hygiène et de l'assainissement en milieu rural/Guide de formation des maçons à la construction de latrines familiales.
- Jean-Philippe DEBUS, Formulaire d'inspection sanitaire de forage, CRS.
- Jimmy Royer, Thomas Djiako, Eric Schiller, Bocar Sada Sy, 1998, Le pompage photovoltaïque. Manuel de cours à l'intention des ingénieurs et des techniciens, IEPF/Université d'Ottawa / EIER / CREPA, 1998.
- Michael Smith, Rod Shaw, 1996, Sanitary surveying, WEDC Loughborough University, 1996.
- R. Franceys, J. Pickford & R. Reed, 1995, A Guide to the development of on-site sanitation.
- Triple-S (Sustainable Services at Scale), September 2011, Service delivery indicators and monitoring to improve sustainability of rural water supplies, IRC International Water and Sanitation Centre.
- World Health Organization, 1997, Guidelines for drinking-water quality, Volume 3 Surveillance and control of community supplies, Geneva 1997.

The GWI Technical Series: Hardware Quality for Sustainable Water & Sanitation:

A practical guide for building a simple pit latrine.

ref.: 2011-01-E



Contracting for water point construction: Provisional and final acceptance forms.

ref.: 2012-04-E



Assuring Quality: an approach to building long-lasting infrastructure in West Africa.

ref.: 2012-01-E



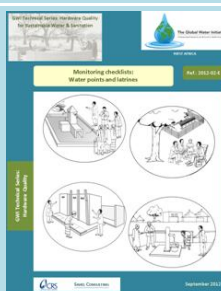
The essential steps before handing-over a borehole (with hand pump) to the community.

ref.: 2012-05-E



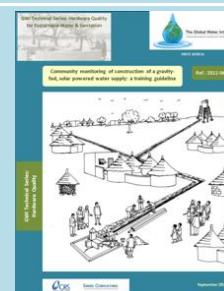
Monitoring checklists: water points and latrines.

ref.: 2012-02-E



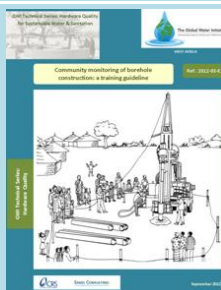
Community monitoring during the construction of a gravity-fed, solar powered water supply: a training guideline.

ref.: 2012-06-E



Community monitoring of borehole construction: a training guideline.

ref.: 2012-03-E



Making the right choice: comparing your rural water technology options.

ref.: 2012-07-E



These documents are also available in French.

The main authors are Lambert Zounogo P. Nikiema (CRS), Sue Cavanna (Sahel Consulting) and Jean-Philippe Debus (CRS).



The Global Water Initiative
A Partnership Funded by the Howard G. Buffet Foundation