

Community Drinking Water Safety & Security Plan (DWSSP) Facilitator's Guide



Community Details	
Village Name	
Area Council / Island	
No of Households	
Village Population	
Village Contact Person	
Revision No:	Date:

Drinking Water Safety & Security Plan

Notes for Facilitator: Introduction

About this guide

In this facilitators guide are instructions and forms to help you assist communities to prepare a Drinking Water Safety and Security Plan (DWSSP).

The guide mimics the format of the template for a DWSSP, but with extra notes for the facilitator.

The facilitator's guide includes:

- An introduction that describes the purpose and benefits of a DWSSP, and outlines steps in preparing and using the DWSSP.
- A template for preparing and recording a DWSSP.
- The template, divided into sections, one section for every step in the DWSSP process. A diagram at the start of each section will provide a quick reference for the facilitator of which step in the DWSSP process they are at. Each section starts with facilitator notes about the purpose of the section and ideas about how to complete the section. Each section includes a blank template to be completed for each community.
- Technical Guides for guidance on technical aspects of the DWSSP assessment, including:
 1. Flow-rate measurements: *"Flo-ret blo Wota: Olsem wanem blong mesarem?"*;
 2. Rainwater capture: *"Renwota kapta: Olsem wanem blong mesarem?"*;

As a facilitator, we recommend you support communities to discuss each section in turn, and record these discussions by whatever means suits the community. Expecting the community to fill in the template as you go is not necessary and may not be appropriate. The template can be completed by you the facilitator after the consultations, using the notes generated by the community. You should provide the community with a copy of the completed template, but their own workshop record will likely be their preferred reference.

Experience in Vanuatu suggests that introducing DWSSP to a community and assisting the community to prepare its DWSSP will take several days. To guide preparation and planning for a community workshop, an example schedule of activities is provided at the end of this section. This should be adapted to suit the community and facilitator. The days may happen one after the other, or may be spread out over several weeks. The important thing is to meet regularly enough to keep the momentum going.

Drinking Water Safety & Security Plan

Introduction to DWSSP

Resilient community water supplies (i.e. a continuously safe and secure supplies) are constantly being challenged by limited and fragile water resources at the mercy of natural hazards such as cyclones, droughts, earthquakes and volcanic eruptions, and the impacts of climate variability and change. Small communities spread over vast distances, and limited human and financial resources to reach out to these communities add to their vulnerability. The behaviours and practices of people, often the consequence of inadequate awareness, put water supply at risk, for example through inappropriate water use and wastage of water, activities that introduce contamination into the water, poorly configured and maintained infrastructure, or inadequate planning and preparedness.

The historical approach to drinking water quality management was by water testing and comparison with drinking water quality standards. This approach, however, only established whether the standards were met at the time and the place the water sample was taken. Because of the sporadic nature of waterborne contamination, the single test said nothing about the quality of water in the days before or after the sample was taken, or from other parts of the water supply. Furthermore, no amount of testing will actually make the water safe. What makes it safe is the actions that people take.

What was called for was a preventative and practical management approach for continuous safe drinking water. Drinking Water Safety Planning (DWSP) became an internationally accepted approach in 2004 when it was included in the 3rd edition of the World Health Organization (WHO) Guidelines on Drinking-water Quality. The Pacific islands, including Vanuatu, were triggered to adopt the approach in 2005 following the WHO Workshop on Drinking Water Quality Standards and Monitoring in Pacific Island Countries. The addition of the second “S” for security in DWSSP has been a more recent explicit addition to the approach to acknowledge the heightened need to also plan for adequate supply of water, especially in anticipation of, and during times of drought.

DWSSP adopts a multi-barrier risk-based approach, in the same way that disaster risk reduction (DRR) and climate change adaptation (CCA) use risk-based community resilience approaches. All have the same aim, doing everything possible to avoid crisis. The following diagram illustrates the common risk-based framework for DWSSP, DRR and CCA, see Figure 1.

Drinking Water Safety & Security Plan

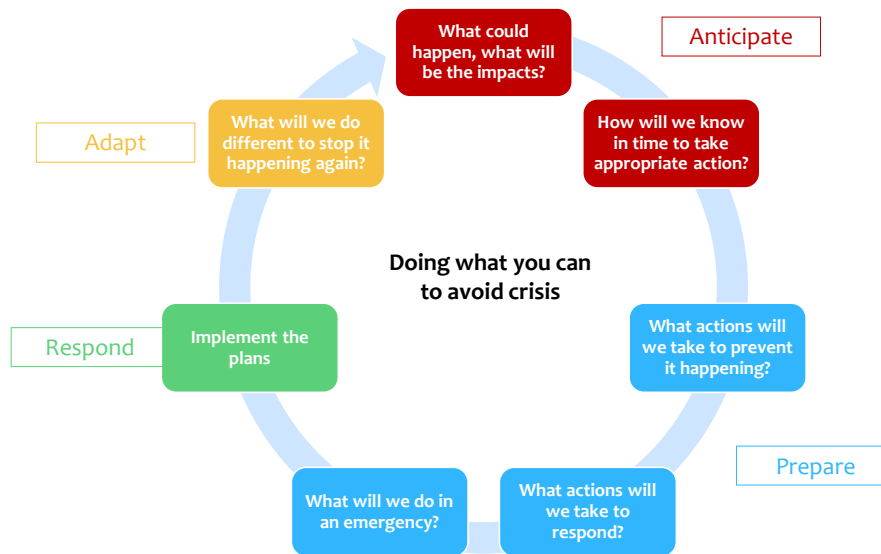


Figure 1: Common risk-based framework

Community engagement in DWSSP can be stimulated from either within or outside the community, maybe because of experiencing an event that threatened the water supply or in anticipation of what could happen. Prior community engagement in PHAST, CLTS or disaster management planning may assist with DWSSP engagement. Communities need to reach the point appreciating the connection between safe drinking water and their health before commencing DWSSP.

Why Prepare a DWSSP?

Water, whether it comes from a river, stream, lake, rain, spring or under the ground, may be unsafe to drink. Water is a scarce resource, and especially so during dry seasons and extreme weather events.

What makes a community water supply safe and secure is the care and consideration people have for activities and actions in the catchment, storage and distribution of the water, and the way they use and conserve the water.

Community water committees have a public health responsibility to their communities to provide drinking-water that is safe to drink and in adequate quantity all-year-round. A well thought out DWSSP will provide community confidence of consistently safe drinking-water.

A DWSSP gives advice about day-to-day actions and makes the case for long-term planning of improvements and expenditure. It is a learning resource for new members of the community water supply committee.

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What is Covered by the DWSSP?

Preparing a DWSSP involves a systematic assessment of every aspect of providing safe and secure drinking-water, identifying what threatens the continuous supply of safe drinking water, and developing plans to manage these threats.

DWSSP is a risk-based approach that considers:

- Threats to access, safe and secure water supply at the community-level
- Threats to everyday services, as well as sudden shocks and slow-creep change
- Priorities of threats and of actions that avoid, manage or respond to the threats and impacts
- The roles that community has in managing their own drinking-water supply and sanitation system
- The improvements that are required, often requiring government assistance.

The DWSSP covers four parts of the supply:

- Catchment and intake
- Treatment
- Storage and distribution
- People and processes.

Safe water supply: The DWSSP helps identify whether any of the following four barriers to contamination are missing, and makes plans to introduce the missing barriers.

- Minimising contamination of the source water
- Removing particles from the water (where many of the pathogens/germs hide)
- Killing or inactivating pathogens
- Preventing recontamination after treatment.

Secure water supply: The DWSSP also helps identify the threats to being able to continuously supply enough water, even during times of prolonged drought, and makes plans to harvest, store and manage demand in anticipation of these periods of threat.

How to Prepare a DWSSP

The following template will guide the community, step-by-step, through a number of questions, and the community responses to these questions become the DWSSP.

The DWSSP community-engagement process asks the following questions.

1. What could threaten the supply of safe and secure water?
2. How bad would it be?
3. What good practice is already happening and needs to continue?
4. What needs to be fixed?
5. What more should be done to prevent or reduce the threat or the impact?
6. What needs to be regularly checked to make sure things are OK?
7. What will we do if things really go wrong?

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The following diagram illustrates the logical set of questions and discussion points for the community, starting with describing the entire existing water and sanitation system (people, facilities, available resources and environment), and noting what is already being done to reduce the chance of people becoming sick or running out of water. These good things need to be acknowledged and continued. Weaknesses in the existing water and sanitation system that could result in people getting sick or running out of water are identified, and a plan is developed to address them. Once the improvements are made, the community commits to on-going actions to maintain the improved system. They also plan in advance what they will do if something does go wrong.



Providing safe and secure drinking water is an ongoing process, so the DWSSP needs to be reviewed at least annually by the community water committee. The DWSSP needs to be reviewed and updated after any significant change to the water supply (for example following a cyclone), or the community identifies a weakness in the plan.

RECOMMENDED DWSSP TRAINING SCHEDULE

Day	Session 1 (Approx. 1-1.5hr)	Session 2 (Approx. 1-1.5hr)	Session 3 (Approx. 1-1.5hr)	Session 4 (Approx. 1-1.5hr)
1	Introduction to DWSSP	Section 1 – Assembling the Water Safety Planning Team	Section 2 – Describing the Supply & Community Mapping	
2	Section 3A – Assess Water Availability Water Supply System		Section 3A – System Improvements for Water Availability	
3	Section 3B – Risk Management – ID Hazards and Control Measures	Section 3B – Risk Management – Assess and Prioritise Risk	Section 3B – Risk Management – Identifying Improvements and Planning	
4	Section 3C – Assess Sanitation Risks and Improvements		Section 4 – Develop Improvement Plan	
5	Sections 5 & 6 – Establish Community Management		Summary and Closing of Workshop <i>Community Q&A</i>	

Introduction / Content

This report presents the Drinking Water Safety & Security Plan of
Community (..... island), following the Drinking Water Safety & Security
Planning Workshop that was facilitated by on the
..... (date).

The purpose of this report is to:

- Describe the water supply system and sanitation system in use in the community, based on technical assessment of the existing infrastructure,
- Provide an analysis of water availability and safety in the community, based on sanitary surveys and evaluation of water use in the community related to the capacities of existing infrastructure to meet the needs,
- Provide guidance to the community to improve the availability and safety of drinking water in the community.

It contains the following six sections, which correspond to the six steps of the DWSSP process.



- Section 1 – DWSSP Team
 - Section 2 – Description of the Current Water Supply and Waste System
 - Section 3 – Risk Assessment of the Current Supply
 - Section 4 – Improvement Plan for the Community
 - Section 5 – Operation, Monitoring and Maintenance
 - Section 6 – Committee Actions
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- Appendices:
 - Appendix 1 – Results of Water Quality Testing
 - Appendix 2 – Results of Sanitary Surveys for drinking water and toilets

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Notes for Facilitator: Step 1 Establish the DWSSP Team



Ask the community to mobilise all the people who could be useful in developing and implementing the DWSSP. This will ensure the DWSSP can, and will, be implemented. The heart of the team will likely be the community water committee (if it exists), but this committee can be supported by other community members who:

- Have the authority to make decisions about making changes, spending money, training people, assigning people to tasks.
- Have technical and scientific knowledge.
- Are responsible for the day-to-day operations of the water supply (these people have to use the DWSSP).
- Know about the history of the supply, because they know what has caused problems in the past.
- Use the drinking-water supply.
- Represent the Women's committee to ensure gender equity.

Example: Teacher, plumber, chief, nurse, carpenter, representatives from community committees (Water Committee, Disaster committee, women's committee etc.), area council secretary.

There is no limit to the composition of a DWSSP team but it is preferred that the team is composed of a small number of people preferably less than 15.

The leader of the DWSSP team must come from the water committee or if this is absent in a community then a representative from the chief's council can assume this role. All other members of the team remain as members of the team and put hands collectively to ensure that the DWSSP activities are carried out.

Materials:

- Flip chart, pins, glue tag
- Markers

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Section 1 – DWSSP Team				
Name	Gender (M/F)	Current Role in Water Committee / Community	Skills Available / Interest in the Water Supply	Contact Details (Address/Phone/E-mail)

Notes for Facilitator: Step 2 Description of water supply and waste system



A good description of the water supply starts the process of identifying what could threaten the safety and security of the drinking water supply.

This step is usually best done by firstly walking the entire supply and talking about it during the walk. Taking photos is a good idea. Once back in the meeting room, participants can then be asked to draw the supply on large pieces of paper.

However in most cases water sources are a long way from the village thus the exercise itself might take a whole day. In such circumstances it is preferable that descriptions be made from memory from those who have a current understanding of the water supply and waste system.

Working in several smaller groups will encourage everyone to participate. Individuals usually challenge or correct each other, making for a richer description. These are overview descriptions, often without too much technical detail or specifications, to encourage everyone to participate.

Technical specifications (such as the volume of storage tanks or roof area) and the system map / flow diagram come a little later in this step, since only a few people may know this detail.

Descriptions should consider:

- All aspects of the supply from catchment and sources through to tanks, taps and drains in the village, and sanitation facilities.
- The locations and purposes of important buildings and activities.
- The condition of existing water and sanitation facilities. *The sanitation facilities and practices of the community can have a significant impact on the water supply.*
- The surrounding environment – a broader map of surrounding communities, availability and reliability of water sources, and activities that could pollute the water, physically-constraining features.
- Who manages, operates and maintains the water and sanitation systems.

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- Who uses the water system and for what purposes, volume and quality requirements.
- Community experiences of access to sufficient water and appropriate sanitation facilities, and any records of water-related illness and records of water quality.

When this exercise is done it is encouraged that groups make their presentations so as to inform other groups of the other descriptions that they may have overlooked. All presentations on flipcharts are to remain with the community. Facilitators are to take pictures of the flipcharts as their backup copy to be later used by the facilitator to complete the DWSSP template report.

NOTE: The above is recommended for all group activities or exercises

Materials:

- Flip chart, pins, glue tag
- Markers
- Notebooks, pens, rulers for participants
- Camera for the facilitator

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Section 2A – Description of Current Supply

Description of Existing Water Supply (This should be a written description of the system)

Please describe below the **water supply system** in use in the village. Use pictures and diagrams where possible. All components of the system should include GPS coordinates.

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Description of Existing Waste System (This should be a written description of the system)

Please describe below the **waste system** in use in the village. Use pictures and diagrams where possible. All components of the system should include GPS coordinates.

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Notes for Facilitator: Step 2 Description of water supply system continued

This section requires technical persons from the community who have a thorough understanding and experience of the water supply and waste system. This group of people or individual (in some cases) are to be the mapping team leader who will lead discussions and dialogues and instruct a group member to draw the map.

The water supply and waste system map must have a legend with symbols and keys, a title, and direction.

Mapping should consider:

- All aspects of the supply from catchment and sources through to tanks, taps and drains in the village, and sanitation facilities.
- The locations and purposes of important buildings and activities.
- The surrounding environment – a broader map of surrounding communities, availability and reliability of water sources, and activities that could pollute the water, physically-constraining features.
- Who manages, operates and maintains the water and sanitation systems.

Note that the mapping exercise will not require going out to the field and walking the whole system. This exercise will depend entirely on the input of those who have current and past knowledge and experience of the water and waste system.

After the field work exercise it is highly recommended that the community update their water supply and waste system map from new or forgotten features observed in the field.

Materials:

- Flip chart, pins, glue tag
- Markers
- Notebooks, pens, rulers for participants
- Camera for the facilitator

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Section 2A – Description of Current Supply

Community System Map Key (Detail symbols used on the map)

Water Supply

Please draw your map symbols for your **water** supply here

Waste Supply

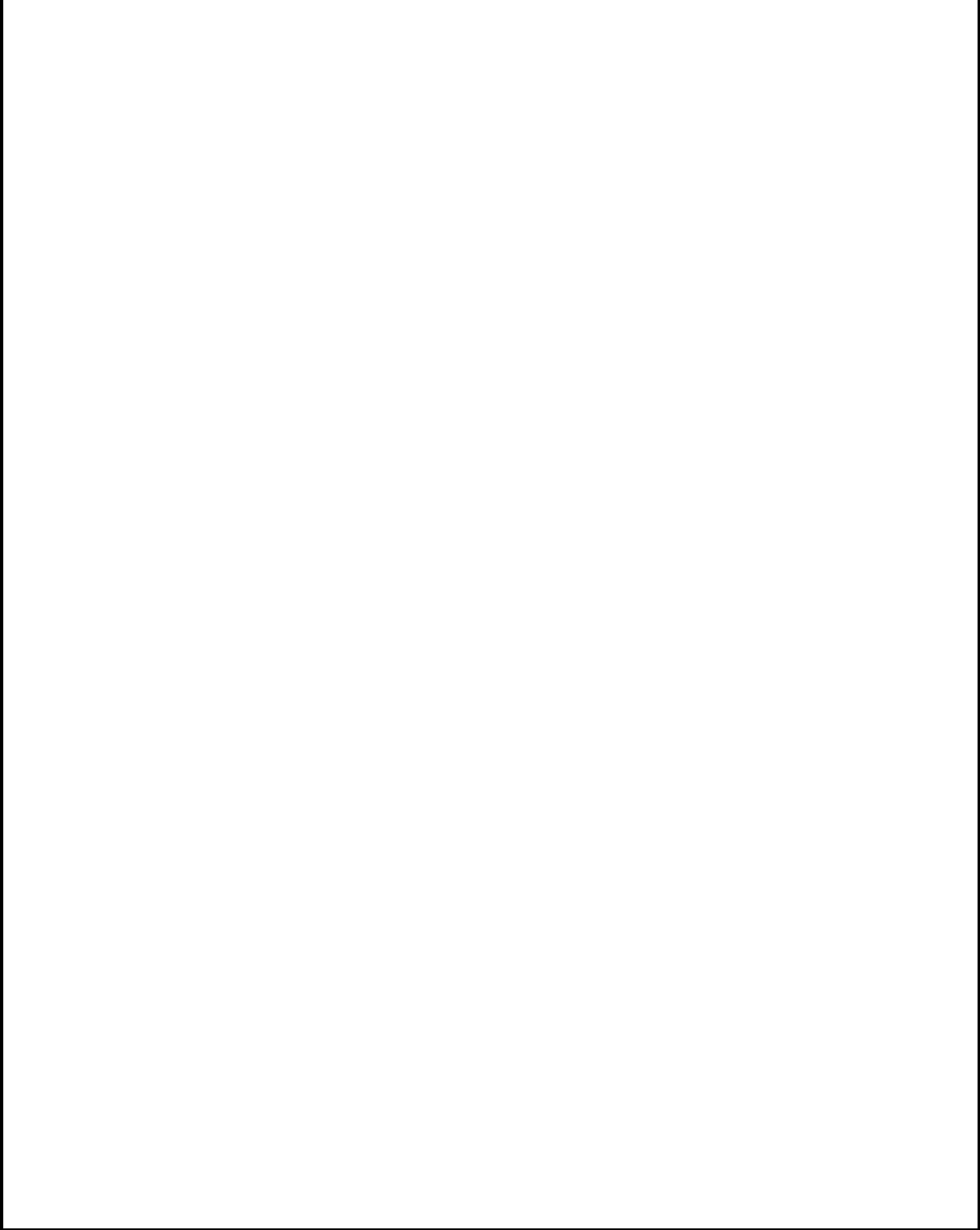
Please draw your map symbols for your **waste** system here

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Section 2B – Description of Current Supply

Community System Map/Flow Diagram (Image of system)

Please draw a map/flow diagram of the current **water and waste** system
If map is attached separately, please tick here



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Notes for Facilitator: Step 2 Description of water supply system continued

For this section fill in the details as required and leave out the water security measurement part and the CBT part for inclusion in the field work. Again, when doing this exercise please ensure that a copy of this section is recorded on a flipchart so that participants can update themselves after getting results from the field work.

Section 2C – Description of Current Supply					
Existing Water Supply (Performance information)					
Gravity Fed <input type="checkbox"/> (River/Spring) (refer Appendix: Flow rate)	Rainwater Capture <input type="checkbox"/> (refer Appendix: Rainwater capture)		Groundwater <input type="checkbox"/> (refer Appendix: Flow rate)	Water <input type="checkbox"/> Storage	Water <input type="checkbox"/> Distribution
Measured Flow_{GF} (litres per day)	No of Buildings Collecting	Average Roof Area (m ²)	Measured Flow_{GW} (litres per day)	Total Storage Capacity (litres)	Number of Distribution Points
	Rainwater available (litres per year)			% full:	
CBT (MPN/100 ml)	CBT (MPN/100 ml)	CBT (MPN/100 ml)	CBT (MPN/100 ml)	CBT (MPN/100 ml)	CBT (MPN/100 ml)
<i>Uses of the system</i>					
Drinking <input type="checkbox"/> Food Preparation <input type="checkbox"/> Hand Washing <input type="checkbox"/> Bathing <input type="checkbox"/> Toilets <input type="checkbox"/>					
Other (Please explain) <input type="checkbox"/>					
<i>Treatment Methods</i>					
Filtration <input type="checkbox"/> Chlorine <input type="checkbox"/> UV Light <input type="checkbox"/> None <input type="checkbox"/> Other (Please explain).....					
<i>Health Data:</i> Number of cases of diarrhea for under 5-year olds in the last year: _____					
Comments (including any other information from the village health worker on fecal-oral related illness):					
Existing Waste System (Amount of sanitation)					
Number of Sanitation and Waste Management Items in the Community					
Toilets	Drains for Sewerage		Rubbish Pits		

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Notes for Facilitator: Step 3 Risk assessment of current system



While the description of the water supply in Step 2 gives a good understanding of the different components and features of the system, you usually have to look a little harder to identify what could cause the water to become unsafe to drink or inadequate in quantity and also to consider what could wrong with your sanitation system. This is called a water supply and waste risk assessment.

A water supply and waste risk assessment gathers recent and past information about the system. Prompt the participants to recall and think about previous problems, things that have been slowly changing, or sudden but short-lived changes and extreme events that have impacted on water quality and delivery. Participants should think about what is visible now, and also what has happened in the past and what might happen in the future.

Participants may need some prompting, especially if they have not experienced some of the hazards. The template provides some prompts, breaking down the discussion to think separately about catchment and intake, treatment, storage and distribution, and anything else. Participants should think about more than the physical water and sanitation system, including:

- Weaknesses that come from the surrounding environment and technology.

Including: Sources of pollution, demand compared to available supply of water, user requirements compared to availability of sanitation and hygiene facilities, impacts of seasonal or longer term climatic conditions and natural events or disasters, condition of water and sanitation facilities, access to knowledge, skills and tools to operate and maintain the water and sanitation system, reliability of power supply, back-up options, locations and practices for sewage waste disposal, health and safety practices.

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- Weaknesses that come from climate change

Including: Future predictions of the impacts of climate change show that in Vanuatu 1) Tropical cyclones will be less frequent, but more intense 2) Extreme rain events will occur more often 3) Overall temperatures and extreme elevated temperatures will increase 4) Sea levels may rise 3-17 cm by 2030 5) Ocean acidification will continue, causing damage to coral reefs and vital ecosystems Climate related cyclones, floods and sea level rise has negatively impacted drinking water systems in Vanuatu . It is anticipated intense winds, flood waters, and landslides from climate change will result in additional bacterial contamination, seawater intrusion and physical damage.

- Weaknesses that come from attitudes and affect behaviour (influenced by culture and the actions of others).

Including: How culture affects thinking and decisions, how past experiences affect thinking and decisions, who is involved in making decisions, how gender, disability and vulnerable group considerations are discussed and included.

- Weaknesses in the enabling environment.

Including: National infrastructure (e.g. roads and electricity), and access to other support (e.g. technical, education, training and health care, and finance mechanisms) that need to be in place for community-based and demand-driven actions and improvements.

In addition to the template prompts, the facilitator can prompt thinking with:

1. Pictorial resources showing the most common and most significant weaknesses that increase the chance of poor water quality leading to people becoming sick or running out of water, and also good practices in a water and sanitation systems.
2. A sanitary survey checklist, which provides a more standardised way of looking for strengths and weaknesses in the water and sanitation system. A caution that many sanitary survey forms are limited in scope because they purposefully restrict the number of questions, and if used as the primary risk assessment tool can miss important risks.

Once these introductions to identifying hazards are done then introduce to the DWSSP team the main tools with which to use in the field for risk assessment. These tools include:

- Water Security assessments (Section 2 and section 3A DWSSP template)
- Community water monitoring guide toolkit (Live and Learn) which includes CBT test kit and Water sanitary surveys
- Toilet Sanitary surveys

Additional materials with which to use in the field for risk assessment includes:

- Camera to take pictures (observation)
- Bucket or container for measuring flow
- Timer
- GPS for locations of water and waste points

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The field work session will take the whole day so planning beforehand is required. The DWSSP team can be divided into groups to assess the water supply and waste system. After the field work the groups can do presentations so that other groups know what the others have done.

Field Trip items to consider:

- Hat, Sunglass, protective clothes and shoes
- Water, snacks and lunch
- First aid kit
- Mobile phone

Once the presentations about the field work is done then proceed to completing Section 3a assessment (water safety) for the different water sources and components. Again encourage group work to cover both the water and waste system.

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Notes for Facilitator: Step 3A Risk Assessment (Water Availability)

This section specifically looks at water security with four main subheadings which includes water access, water quantity, and community drought and flood risk and preparedness. Water security assessments (Section 2 and section 3A) done in the field is required to complete this section.

Questions in water quantity section focus more on the demand versus supply concept. Thus it is recommended that you go slowly with the participants and make it clear for them to understand. This can be confusing especially the calculations if you do not explain and clarify.

Materials:

- Flip chart, pins, glue tag
- Markers
- Notebooks, pens, rulers for participants
- Camera for the facilitator

Notes for Facilitator: Step 3B Risk Assessment (Water Safety)

This section helps to prioritise what needs most urgent attention in order to improve water safety, because usually you cannot deal with everything at once. In general, priority should be given to the hazards that will make people sick or result in running out of water, and events that will most likely happen.

Notes in the previous section – *Water Supply Assessment* – will help.

There are seven similar tables (Surface water Source, Spring Source, Groundwater Source, Rainwater Capture, Water Storage, Water Distribution and Other). Only complete the tables that fit the water supply.

Tick the boxes in the second column of each table with the contamination sources that could cause the water to become unsafe to drink or result in running out of water.

Then fill in the third column in each tables. In most communities there are some control measures in place, and having community identify these is a boost for them since it encourages them of the good work that they are doing for their water supply system.

Then fill out the fourth column to prioritise the risks. Some of these contamination risks will be more likely to happen than others, and some are more likely than others to make people sick or cause the community to run out of water. The community “gut feeling” (intuition) may be an OK way to judge priorities. Alternatively, use the following **Judging Priorities** tables – follow steps 1 then 2 then 3.

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Judging Priorities Tables

1. For each hazard, decide on the **likelihood** of it happening.

Likelihood score	Possible descriptions
Almost certain	Occurs like clockwork. Occurs every week, month, or season.
Likely	Has occurred more than once before. Expected to occur every year.
Possible	Has occurred before. Expected to occur every 2–5 years.
Unlikely	Has never occurred before, but expected to occur every 5–10 years.
Rare	Has never occurred before, and expected to occur less than once every 10 years.

2. For each hazard, decide on the **consequence** to people’s health if it did happen.

Consequence score	Possible descriptions
Insignificant	No illness expected in the community.
Minor	Very few of the community ill.
Moderate	Some of the community ill
Major	Most of the community ill.
Catastrophic	All of the community ill. Anticipate some deaths.

3. For each hazard, look up the **likelihood** and **consequence scores** in this table to find the corresponding **priority** (very low, low, medium, high, very high).

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Likelihood	Consequence				
	Insignificant	Minor	Moderate	Major	Catastrophic
Almost certain	Medium	Medium	High	High	Very high
Likely	Medium	Medium	Medium	High	High
Possible	Very low	Low	Medium	High	High
Unlikely	Very low	Very low	Low	Medium	High
Rare	Very low	Very low	Low	Medium	Medium

Also use the water sanitary surveys to look at the risk scores for each water source/ component to help you decide on which box to tick.

Then fill out the fifth column. Tick the boxes that compliment how the hazard can be reduced or mitigated. Note that if improvements required is not included in the list then there is another option called *other (please list)*. There is also space for listing temporary improvements, to be used until the permanent improvements are made, for example an instruction to boil water if there is a risk of bacteria in the water.

Materials:

- Flip chart, pins, glue tag
- Markers
- Notebooks, pens, rulers for participants
- Camera for the facilitator

Notes for Facilitator: Step 3C Risk Assessment (Sanitation system)

This section deals mainly with the sanitation system. Complete this section using mainly the Toilet sanitary survey results taken from the field. As a facilitator, having a background on sanitation is a plus since it will help you guide discussions and answer questions from the participants.

Note: For toilets requiring upgrades to lining of collection pit and adequate depth of collection pit it is advised that these toilets be replaced or install new toilets since it is very hard to upgrade an existing toilet which has a pit collection issue. It is also a taboo in communities to handle their own waste thus the install new toilet option would be preferable.

Materials:

- Flip chart, pins, glue tag
- Markers
- Notebooks, pens, rulers for participants
- Camera for the facilitator

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Section 3A – Assessment (Water Access/Availability)

Water Availability

Number of People in Community 3A	Estimated Daily Usage (litres per day) [3B = 3A* N litres/day] 3B (Select value for N)	Storage Required (litres) [3C = 3B] 3C	Estimated Usage by Population per year (litres per year) [3D = 3A*N l/day *365] 3D

Water Quantity – Piped Supply System (GF) or Groundwater Source (GW)
Is the total measured flow in Section 2C enough to meet demand 3B? Yes No
If NO, look to improve the system design to increase flow (Please tick)
Is this source available at all times during the year? Yes No
If NO, develop/strengthen Additional Water Source/s (Please tick)

Water Quantity – Rainwater Capture (ONLY ANSWER IF RWC IS ONLY WATER SOURCE)
Is the Rainwater supply in Section 2C enough to meet demand 3D? Yes No
If NO, develop Additional Water Source/s (Please tick)

Water Storage – Piped Supply System
Is the current storage 2H enough to meet the required storage amount 3C?
Yes No **(If NO, add More Storage)**
How much extra Storage is required? _____ litres
Number of tanks required $\left[\frac{\text{Storage Required}}{5000 \text{ OR } 10000} \right]$ _____ tanks

Water Quantity – Distribution Points
Are flow rates **more** than 6 litres/min at the tapstand/s? Yes No
If NO, look to improve the system design to increase distribution flow (Please tick)
REMEMBER: Doing this can change pressures and flows in the system. It is important to get some technical assistance when planning to change flows in the distribution system.

Water Access (Only Upgrade if enough water is supplied by the system)

Water Access
Do more than 5 households share 1 distribution point? Yes No
Are any distribution points more than 200m away (2-3mins walk)? Yes No
If YES to either question, then you need extra distribution points (Please Tick)
REMEMBER: Doing this can change pressures and flows in the system. It is important to get some technical assistance when planning to increase the distribution system.

How many extra points are required? **PLEASE MARK ON COMMUNITY MAP**

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Drought Risk and Preparedness			
<i>Risk Factors</i>	<i>Mitigation Measures</i>	<i>Risk</i>	<i>Improvements</i>
Significant dry periods >3months <input type="checkbox"/> Variation in source water level/s <input type="checkbox"/> Significant leaks in system <input type="checkbox"/> Other (Please list)	High storage capacity <input type="checkbox"/> Multiple water sources <input type="checkbox"/> Water resource management (WRM) undertaken <input type="checkbox"/> Household water treatment and storage <input type="checkbox"/> Other (Please list)	High <input type="checkbox"/> (Action Needed Now) Medium <input type="checkbox"/> (Upgrades Needed) Low <input type="checkbox"/> (No Action Required)	Fix/optimize system <input type="checkbox"/> Increase storage <input type="checkbox"/> Develop additional source <input type="checkbox"/> Implement WRM <input type="checkbox"/> Household water treatment and storage <input type="checkbox"/> Other (Please list)
Flood Risk and Preparedness			
<i>Risk Factors</i>	<i>Mitigation Measures</i>	<i>Risk</i>	<i>Improvements</i>
Significant periods of heavy rain causing unusable dirty river, spring or well water <input type="checkbox"/> Damage to intake, pipes, tanks <input type="checkbox"/> Other (Please list)	High storage capacity <input type="checkbox"/> Multiple water sources <input type="checkbox"/> Good spring or well-head protection <input type="checkbox"/> Water resource management (WRM) undertaken <input type="checkbox"/> Household water treatment and storage <input type="checkbox"/> Other (Please list)	High <input type="checkbox"/> (Action Needed Now) Medium <input type="checkbox"/> (Upgrades Needed) Low <input type="checkbox"/> (No Action Required)	Fix/optimize system <input type="checkbox"/> Repair broken covers <input type="checkbox"/> Bury pipelines <input type="checkbox"/> Relocate tanks at risk of landslide <input type="checkbox"/> Household water treatment and storage <input type="checkbox"/> Other (Please list)
Cyclone Risk and Preparedness			
<i>Risk Factors</i>	<i>Mitigation Measures</i>	<i>Risk</i>	<i>Improvements</i>

Drinking Water Safety & Security Plan

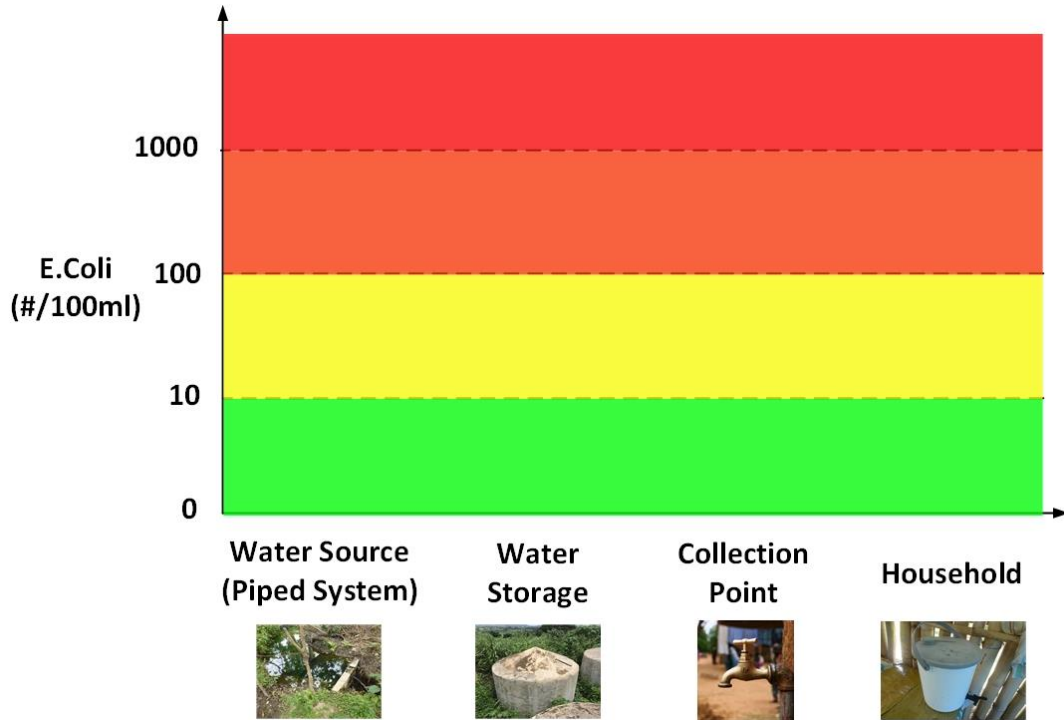
<p>High winds <input type="checkbox"/></p> <p>Damage to intake, pipes, tanks <input type="checkbox"/></p> <p><i>Other (Please list)</i></p>	<p>High storage capacity <input type="checkbox"/></p> <p>Multiple water sources <input type="checkbox"/></p> <p>Good spring or well-head protection <input type="checkbox"/></p> <p>Water resource management (WRM) undertaken <input type="checkbox"/></p> <p><i>Other (Please list)</i></p>	<p><i>High</i> <input type="checkbox"/> (Action Needed Now)</p> <p><i>Medium</i> <input type="checkbox"/> (Upgrades Needed)</p> <p><i>Low</i> <input type="checkbox"/> (No Action Required)</p>	<p>Cover Water Sources <input type="checkbox"/></p> <p>Tie Down storage tanks and rainwater collection roofs and gutters <input type="checkbox"/></p> <p>Strengthen road/river pipe crossing <input type="checkbox"/></p> <p>Construct housing around valves <input type="checkbox"/></p> <p>Reinforce pipe stands <input type="checkbox"/></p> <p><i>Other (Please list)</i></p>
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Drinking Water Safety & Security Plan

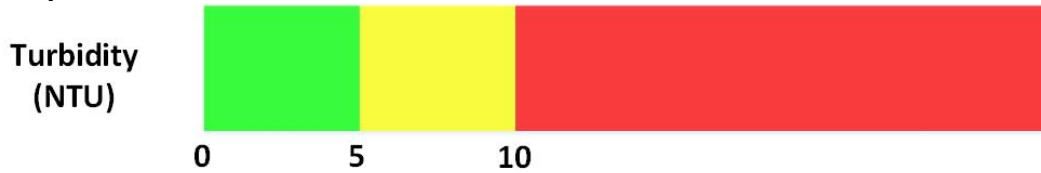
Section 3B – Assessment (Water Safety)

Water Quality Results

E.Coli Results



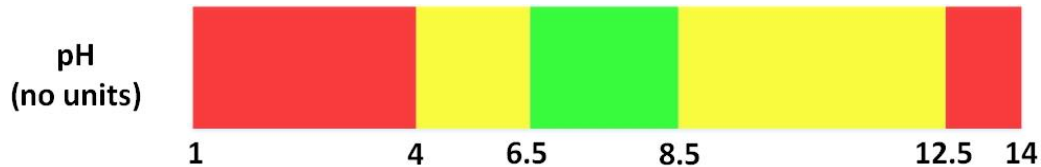
Turbidity Results



Conductivity Results



pH Results



Drinking Water Safety & Security Plan

Section 3B – Assessment (Water Safety)				
Water Source – Surface Water Source		Do you use a Surface Water Source? (Please Tick) Yes <input type="checkbox"/> No <input type="checkbox"/>		
Hazard	Contamination Source (Tick if present)	Current Control Measures (Tick if present)	Risk	Improvements Required
Bacteria in Water	Human houses upstream <input type="checkbox"/> Farm animals nearby/upstream <input type="checkbox"/> Crop farming nearby/upstream <input type="checkbox"/> Toilet within 30m <input type="checkbox"/> Other (Please list)	Fencing around source <input type="checkbox"/> Intake screen present <input type="checkbox"/> Gravel or Sand Filter <input type="checkbox"/> Other (Please list)	High <input type="checkbox"/> (Action Needed Now) Medium <input type="checkbox"/> (Upgrades Needed) Low <input type="checkbox"/> (No Action Required)	Build Fence <input type="checkbox"/> Install screen <input type="checkbox"/> Install Filter <input type="checkbox"/> Move Source <input type="checkbox"/> Move Toilet <input type="checkbox"/> Other (Please list)
Chemicals in Water	Use of pesticides in area <input type="checkbox"/> Waste water discharge in area <input type="checkbox"/> Algae present at source <input type="checkbox"/> Other (Please list)	Gravel or Sand Filter <input type="checkbox"/> Other (Please list)	High <input type="checkbox"/> Medium <input type="checkbox"/> Low <input type="checkbox"/>	Install Filter <input type="checkbox"/> Move Source <input type="checkbox"/> Other (Please list)

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<p style="text-align: center;">Bad Colour or Taste</p>	<p>Soil Erosion at source <input type="checkbox"/></p> <p><i>Other (Please list)</i></p>	<p>Gravel or Sand Filter <input type="checkbox"/></p> <p>Storage and settlement tanks <input type="checkbox"/></p> <p><i>Other (Please list)</i></p>	<p style="text-align: center;"><i>High</i> <input type="checkbox"/></p> <p style="text-align: center;"><i>Medium</i> <input type="checkbox"/></p> <p style="text-align: center;"><i>Low</i> <input type="checkbox"/></p>	<p>Install Filter <input type="checkbox"/></p> <p>Install Storage <input type="checkbox"/></p> <p><i>Other (Please list)</i></p>
<p style="text-align: center;">Bad Flow or Pressure</p>	<p>High pressure in taps <input type="checkbox"/></p> <p>Significant leaks in pipes <input type="checkbox"/></p> <p><i>Other (Please list)</i></p>	<p>Minimum Head Device <input type="checkbox"/></p> <p>Pressure Box <input type="checkbox"/></p> <p><i>Other (Please list)</i></p>	<p style="text-align: center;"><i>High</i> <input type="checkbox"/></p> <p style="text-align: center;"><i>Medium</i> <input type="checkbox"/></p> <p style="text-align: center;"><i>Low</i> <input type="checkbox"/></p>	<p>Install Head Device <input type="checkbox"/></p> <p>Install Pressure Box <input type="checkbox"/></p> <p><i>Other (Please list)</i></p>

Drinking Water Safety & Security Plan

Water Source – Spring Source		Do you use a Spring Source? (Please Tick) Yes <input type="checkbox"/> No <input type="checkbox"/>		
Hazard	Contamination Source (Tick if present)	Current Control Measures (Tick if present)	Risk	Improvements Required
Bacteria in Water	Animals can access source <input type="checkbox"/>	Spring box and cover <input type="checkbox"/>	High <input type="checkbox"/>	Build Fence <input type="checkbox"/>
	Spring box/cover is dirty <input type="checkbox"/>	Fencing around source <input type="checkbox"/>	(Action Needed Now)	Build spring box <input type="checkbox"/>
	Silt/soil/dirt near source <input type="checkbox"/>	Air vent (Clean) <input type="checkbox"/>	Medium <input type="checkbox"/>	Install/Clean cover, vent <input type="checkbox"/>
	Surface water can flow into spring water <input type="checkbox"/>	Diversion ditch <input type="checkbox"/>	(Upgrades Needed)	Dig diversion ditch <input type="checkbox"/>
	Toilet within 30m <input type="checkbox"/>	<i>Other (Please list)</i>	Low <input type="checkbox"/>	Move Toilet <input type="checkbox"/>
	<i>Other (Please list)</i>		(No Action Required)	<i>Other (Please list)</i>
Chemicals in Water	Use of pesticides in area <input type="checkbox"/>	Gravel or Sand Filter <input type="checkbox"/>		Install Filter <input type="checkbox"/>
	Waste water discharge in area <input type="checkbox"/>	<i>Other (Please list)</i>	High <input type="checkbox"/>	Move Source <input type="checkbox"/>
	Algae present at source <input type="checkbox"/>		Medium <input type="checkbox"/>	<i>Other (Please list)</i>
	<i>Other (Please list)</i>		Low <input type="checkbox"/>	
Bad Colour or Taste	Silt/soil/dirt near source <input type="checkbox"/>	Gravel or Sand Filter <input type="checkbox"/>	High <input type="checkbox"/>	Install Filter <input type="checkbox"/>
	<i>Other (Please list)</i>	Storage and settlement tanks <input type="checkbox"/>	Medium <input type="checkbox"/>	Install Storage <input type="checkbox"/>
		<i>Other (Please list)</i>	Low <input type="checkbox"/>	<i>Other (Please list)</i>

Drinking Water Safety & Security Plan

Bad Flow or Pressure	High pressure in taps <input type="checkbox"/> Significant leaks in pipes <input type="checkbox"/> Overflow water at source <input type="checkbox"/> <i>Other (Please list)</i>	Overflow pipe (clean) <input type="checkbox"/> Pressure Box <input type="checkbox"/> <i>Other (Please list)</i>	High <input type="checkbox"/> Medium <input type="checkbox"/> Low <input type="checkbox"/>	Install Head Device <input type="checkbox"/> Install Pressure Box <input type="checkbox"/> <i>Other (Please list)</i>
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Drinking Water Safety & Security Plan

Water Source – Rainwater Capture		Do you use a Rainwater Capture? (Please Tick) Yes <input type="checkbox"/> No <input type="checkbox"/>		
Hazard	Contamination Source (Tick if present)	Current Control Measures (Tick if present)	Risk	Improvements Required
Bacteria in Water	Roof is dirty <input type="checkbox"/>	Tank cover in place <input type="checkbox"/> Tank inlet has mesh/sieve <input type="checkbox"/> First flush filter <input type="checkbox"/> Other (Please list) <input type="checkbox"/>	High <input type="checkbox"/> (Action Needed Now) Medium <input type="checkbox"/> (Upgrades Needed) Low <input type="checkbox"/> (No Action Required)	N°
	Gutters are dirty <input type="checkbox"/>			Clean roof/gutters <input type="checkbox"/>
	Open access to tank <input type="checkbox"/>			Install covers on tank <input type="checkbox"/>
	Tank is cracked <input type="checkbox"/>			Install inlet mesh/sieve <input type="checkbox"/>
	Tap is leaking <input type="checkbox"/>			Install first flush filter <input type="checkbox"/>
	Water collection area is dirty / standing water <input type="checkbox"/>			Repair cracks <input type="checkbox"/>
	Pollution (e.g. trees, Excreta etc) near system <input type="checkbox"/>			Repair/replace tap <input type="checkbox"/>
	Collection bucket dirty <input type="checkbox"/>			Add drainage/clean collection area <input type="checkbox"/>
Other (Please list) <input type="checkbox"/>	Remove pollution <input type="checkbox"/>			
Other (Please list)	Other (Please list)			
Chemicals in Water	Roof is corroded/rust <input type="checkbox"/>	First flush Filter <input type="checkbox"/>	High <input type="checkbox"/>	Install Filter <input type="checkbox"/>
	Other (Please list) <input type="checkbox"/>	Other (Please list)	Medium <input type="checkbox"/>	Repair/replace/paint roof <input type="checkbox"/>
			Low <input type="checkbox"/>	Other (Please list)

Drinking Water Safety & Security Plan

Water Source – Groundwater		Do you use a Groundwater Source? (Please Tick) Yes <input type="checkbox"/> No <input type="checkbox"/>		
Hazard	Contamination Source (Tick if present)	Current Control Measures (Tick if present)	Risk	Improvements Required
Bacteria in Water	Toilet within 10m of well <input type="checkbox"/> Toilets above well height <input type="checkbox"/> Other pollution within 10m of well e.g. rubbish <input type="checkbox"/> Standing water within 2m of well <input type="checkbox"/> Broken drainage channel <input type="checkbox"/> Surface water can enter From broken wall <input type="checkbox"/> Cracks in concrete wall <input type="checkbox"/> Collection bucket dirty <input type="checkbox"/> <i>Other (Please list)</i>	Fence around well <input type="checkbox"/> Well is sealed to 3m depth <input type="checkbox"/> Drainage channel installed <input type="checkbox"/> <i>Other (Please list)</i>	High <input type="checkbox"/> (Action Needed Now) Medium <input type="checkbox"/> (Upgrades Needed) Low <input type="checkbox"/> (No Action Required)	Move toilets <input type="checkbox"/> Build fence around well <input type="checkbox"/> Repair/Install concrete <input type="checkbox"/> Line well to 3m depth <input type="checkbox"/> Repair well wall <input type="checkbox"/> Clean well area <input type="checkbox"/> Remove pollution <input type="checkbox"/> <i>Other (Please list)</i>
Chemicals in Water	Salty water <input type="checkbox"/> Use of pesticides in area <input type="checkbox"/> Waste water discharge in area <input type="checkbox"/> <i>Other (Please list)</i>	Water treatment system <input type="checkbox"/> <i>Other (Please list)</i>	High <input type="checkbox"/> Medium <input type="checkbox"/> Low	Install Treatment <input type="checkbox"/> Move Source <input type="checkbox"/> <i>Other (Please list)</i>

Drinking Water Safety & Security Plan

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Water Storage – Storage Reservoir		Do you use Water Storage? (Please Tick) Yes <input type="checkbox"/> No <input type="checkbox"/>		
Hazard	Contamination Source (Tick if present)	Current Control Measures (Tick if present)	Risk	Improvements Required
Bacteria in Water	Open access to tank <input type="checkbox"/> Vents/screens are dirty <input type="checkbox"/> Tank is cracked <input type="checkbox"/> Pipes are leaking <input type="checkbox"/> Dirty inside tank <input type="checkbox"/> <i>Other (Please list)</i>	Tank cover in place <input type="checkbox"/> Tank inlet has mesh/sieve <input type="checkbox"/> Tank has air vent <input type="checkbox"/> <i>Other (Please list)</i>	High <input type="checkbox"/> (Action Needed Now) Medium <input type="checkbox"/> (Upgrades Needed) Low <input type="checkbox"/> (No Action Required)	Install covers on tank <input type="checkbox"/> Install inlet mesh/sieve <input type="checkbox"/> Install air vent <input type="checkbox"/> Repair cracks <input type="checkbox"/> Repair/replace pipes <input type="checkbox"/> Clean tank <input type="checkbox"/> <i>Other (Please list)</i>
Chemicals in Water	Pipes are corroded <input type="checkbox"/> <i>Other (Please list)</i>	Treatment Filter <input type="checkbox"/> <i>Other (Please list)</i>	High <input type="checkbox"/> Medium <input type="checkbox"/> Low <input type="checkbox"/>	Replace corroded pipe <input type="checkbox"/> Install Filter <input type="checkbox"/> <i>Other (Please list)</i>
Bad Flow or Pressure	High pressure in taps <input type="checkbox"/> Low pressure in taps <input type="checkbox"/>	Overflow pipe (clean) <input type="checkbox"/> Float valve <input type="checkbox"/>	High <input type="checkbox"/> Medium <input type="checkbox"/>	Install overflow pipe <input type="checkbox"/> Install float valve <input type="checkbox"/>

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	Significant leaks in pipes <input type="checkbox"/> <i>Other (Please list)</i>	<i>Other (Please list)</i>	<i>Low</i> <input type="checkbox"/>	<i>Other (Please list)</i>
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Drinking Water Safety & Security Plan

Water Distribution – Stand Pipes		Do you use Stand Pipes? (Please Tick) Yes <input type="checkbox"/> No <input type="checkbox"/>		
Hazard	Contamination Source (Tick if present)	Current Control Measures (Tick if present)	Risk	Improvements Required
Bacteria in Water	Leaks in surrounding pipes <input type="checkbox"/>	Fence around stand pipe <input type="checkbox"/> Drainage area/channel <input type="checkbox"/> <i>Other (Please list)</i>	High <input type="checkbox"/> (Action Needed Now) Medium <input type="checkbox"/> (Upgrades Needed) Low <input type="checkbox"/> (No Action Required)	N° Build fence/s <input type="checkbox"/> Install drainage <input type="checkbox"/> Repair/replace pipe/s <input type="checkbox"/> Repair/replace pipe stand/s <input type="checkbox"/> Repair/replace tap/s <input type="checkbox"/> Clean collection area/s <input type="checkbox"/> <i>Other (Please list)</i>
	Animals access to area <input type="checkbox"/>			
	Standing water in collection area <input type="checkbox"/>			
	Rubbish/pollution near tap stand <input type="checkbox"/>			
	Tap stand is cracked <input type="checkbox"/>			
	Taps are leaking <input type="checkbox"/>			
	<i>Other (Please list)</i>			
Chemicals in Water	Pipes are corroded <input type="checkbox"/> <i>Other (Please list)</i>	Plastic piping <input type="checkbox"/> <i>Other (Please list)</i>	High <input type="checkbox"/> Medium <input type="checkbox"/> Low <input type="checkbox"/>	N° Replace corroded pipe/s <input type="checkbox"/> <i>Other (Please list)</i>

Drinking Water Safety & Security Plan

Water Consumers – Households		Was this assessed during the visit ? (Please Tick) Yes <input type="checkbox"/> No <input type="checkbox"/>		
Hazard	Contamination Source (Tick if present)	Current Control Measures (Tick if present)	Risk	Improvements Required
Bacteria in Water	Non covered storage <input type="checkbox"/> Containers are dirty <input type="checkbox"/> Household Rainwater <input type="checkbox"/> Dirty buckets for collection <input type="checkbox"/> <i>Other (Please list)</i>	HH Chlorine tablets <input type="checkbox"/> UV treatment <input type="checkbox"/> Boil water <input type="checkbox"/> Sealed storage containers <input type="checkbox"/> First Flush on Rainwater <input type="checkbox"/> <i>Other (Please list)</i>	High <input type="checkbox"/> (Action Needed Now) Medium <input type="checkbox"/> (Upgrades Needed) Low <input type="checkbox"/> (No Action Required)	Obtain sealed storage containers <input type="checkbox"/> Clean/disinfect storage Containers & buckets <input type="checkbox"/> Begin boiling water <input type="checkbox"/> Household treatment <input type="checkbox"/> Install first flush <input type="checkbox"/> <i>Other (Please list)</i>
	Chemicals in Water	House pipes/storage is corroded <input type="checkbox"/> <i>Other (Please list)</i>	Treatment to remove chemicals <input type="checkbox"/> <i>Other (Please list)</i>	High <input type="checkbox"/> Medium <input type="checkbox"/> Low <input type="checkbox"/>

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Section 3C – Assessment (Sanitation System)

Toilet Sanitary Survey Result (See Appendix No. 2)

How many toilets need **replacing**?

How many toilets need **upgrading**?

Replace/Install New Toilets

Are replacing or installing new toilets? (Please tick) Yes No

Toilet Options (Please indicate the type and amount of toilets required)

VIP Toilet <input type="checkbox"/> Number Required	Pour Flush Toilet <input type="checkbox"/> Number Required	Septic Tank Toilet <input type="checkbox"/> Number Required Has soil permeability test been performed? Yes <input type="checkbox"/> No <input type="checkbox"/>
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Upgrade Existing Toilets

Do existing toilets require upgrading? (Please tick) Yes No

What toilet type/s do you want to upgrade? (Please tick all relevant ones)

VIP Toilet Pour Flush Toilet Septic Tank Toilet

VIP Toilet – Number requiring upgrade:

- Number requiring repairs to structure
- Number requiring a vent with flywire
- Number requiring upgrade of slab / riser
- Number that would require lining of pit

Pour Flush Toilet – Number requiring upgrade.....

- Number requiring repairs to structure
- Number requiring vents
- Number of collection pits requiring a cover for access
- Number of collection pits requiring a vent

Septic Tank Toilet – Number requiring upgrade.....

- Number requiring repairs to structure
- Number requiring vents
- Number with drainpipes requiring a vent
- Number with drainpipes requiring inspection access
- Number requiring a new septic tank
- Number requiring a drainage trench

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Notes for Facilitator: Step 4 Improvement Plan



The community has now decided what needs priority attention so that the water does not become unsafe to drink or run out of water, so needs to next think about what improvements will fix the problems. Some improvements will be a simple adjustment of something already being doing. Some improvements will cost very little, and others could be more major.

Not all improvements need be major infrastructure. The community should first be encouraged to think of things they can improve themselves. Improvements can include:

- Improved operations and maintenance
- Fixing things that are broken
- Preparing documentation, such as standard operating procedures, and emergency and incident plans
- Training for community members, especially those with responsibility for looking after the water and sanitation systems
- Minor purchases
- Major infrastructure projects.

Even for those improvements that cannot be made straightaway, the risk of people getting sick, or running out of water, remains. Think about temporary actions for these. It might be something like issuing a boil water notice, or manually shutting off the intake.

You also need to find some sign/indicator/trigger that things are starting to go wrong and that some temporary action is needed now.

Ask the community to copy all the hazards that need some attention from the previous section 3 into the corresponding tables in this section. Then fill in the rest of the tables.

There is no need to get down to very detailed planning at this stage, especially for major projects.

For section 4 Improvement Plan (Work Schedule), it may be helpful to group improvements.

Drinking Water Safety & Security Plan

Grouping improvements to develop a work programme

In practice, an incremental improvement plan is best to ensure limited funds from within and external to the community are used effectively. However, there is good reason to start with some of the simple no/low cost improvements to achieve early successes that will motivate the community to want to take the next step.

It may be helpful to group the improvements into categories that reflect increasing complexity and external assistance, such as:

- | | |
|--------------------------|--|
| Category 1 Improvements. | Improving the way the existing water and sanitation facilities are used. |
| Category 2 Improvements. | Reducing environmental pollution, so that surface and well water is not contaminated and people are not directly exposed to harmful contaminants, such as human and animal faecal waste. |
| Category 3 Improvements. | Improving the way the existing water and sanitation facilities are operated and maintained, including preparing and using procedures, preparing and using schedules, and technical training. |
| Category 4 Improvements. | Repairing broken parts of the existing water and sanitation systems. |
| Category 5 Improvements. | Replacing or installing new infrastructure. |
| Category 6 Improvements. | Temporary solutions, until the category 5 improvements are made. |

Getting the best out of what exists

Category 1 Improvements will mostly be responding to the weaknesses that come from attitudes and behaviour. An important contribution to these improvements will be made from the enabling environment, particularly water and sanitation awareness.

Many of the Category 2 and 3 Improvements should be the responsibility of the community. Little external assistance should be required, except for possibly training. For each of the improvements in these two categories, the community needs to discuss, agree and document who will take responsibility for the making the improvement, when the improvement will happen, and what support do they require (e.g. local knowledge, authority to act, or training). A small budget may be required for day-to-day operation and maintenance expenses, and ideally this should be sought from the community.

Category 4 Improvements are likely to require some external assistance, such as access to technical expertise and tools, and likely require some money to pay for parts and labour. Since these improvements are dependent on external assistance, there will be some delay in

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making the improvement. However, the community should still make a plan for these improvements including (i) breaking the improvement down into practical steps, (ii) doing as much of the improvement as they can without external assistance, (iii) deciding who will take responsibility for requesting the external assistance, and (iv) deciding who will oversee the delivery of the external assistance and completion of the improvement.

New investments

Category 5 Improvements are likely to be the most expensive improvements in the plan and will require external assistance. Major projects will need assistance from the DGMWR to design and approve.

Realistically, a feasible and affordable improvement plan for the entire water and sanitation system is likely to span several years. During this time, it may be necessary to put in place some temporary ways to manage the high health risks until resources become available for the preferred permanent improvement. These are the Category 6 Improvements, and may include actions such as notices to boil water before drinking, or designating an area for open defecation or a pit latrine until the appropriate Category 5 Improvement is made.

At the end of this step the community's *Improvement Plan* with short, medium and long term actions will be ready for implementation.

Materials:

- Flip chart, pins, glue tag
- Markers
- Notebooks, pens, rulers for participants
- Camera for the facilitator

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Section 4 – Improvement Plan

Water Security – Availability and Access

Improvement Required	Materials	Costing	Responsibility	Timeframe

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Water Source – Surface Water Source				
Improvement Required	Materials	Costing	Responsibility	Timeframe

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Water Source – Spring Source				
Improvement Required	Materials	Costing	Responsibility	Timeframe

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Water Source – Rainwater capture (Community RWCs)				
Improvement Required	Materials	Costing	Responsibility	Timeframe

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Water Source – Rainwater capture (private RWCs)				
Improvement Required	Materials	Costing	Responsibility	Timeframe

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Water Source – Groundwater (open-dug well close to the shore)				
Improvement Required	Materials	Costing	Responsibility	Timeframe

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Water storage – Storage reservoir				
Improvement Required	Materials	Costing	Responsibility	Timeframe

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Water Distribution – Standpipes				
Improvement Required	Materials	Costing	Responsibility	Timeframe

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Water Consumers – Households				
Improvement Required	Materials	Costing	Responsibility	Timeframe

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Sanitation				
Improvement Required	Materials*	Costing*	Responsibility	Timeframe

* Standard material list and costs are available by contact a representative from the Environmental Health team, Ministry of Health.

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Notes for Facilitator: Step 5 Operation, Monitoring and Maintenance



Monitoring and inspection (observations) of the drinking-water supply is a critical part of managing what can cause the water supply to become unsafe to drink, or to run out of water. The results of monitoring and inspection can demonstrate that parts of the supply continue to be well managed, or that something needs attention. Monitoring and inspection results can trigger temporary action as soon as things start to go wrong.

Important monitoring and inspections for the supply have already been identified in:

- *Section 3d Risk Assessment (Prioritisation)*, under the column *Is this under control now? If so, describe how it is being controlled.*
- *Section 4 Improvement Plan*, under the column *Until fixed, how will you know when this is actually causing unsafe drinking-water, or running out of water?*

Some monitoring and inspection examples might be:

- Inspection of the spring intake immediately after heavy rain.
- Weekly checking for broken water pipes.
- Daily checking for taps left turned on.
- Daily or weekly check of pump oil tank.

Routine **operation and maintenance** is part of managing the threats. Some examples might be:

- Annual cleaning of storage tanks.
- Cleaning of the spring intake immediately after heavy rain.
- Repairing broken concrete slabs.
- Replacing washers and seals.
- Refuelling pumps.

The operation and maintenance plan should outline:

- The tasks required, ordered by frequency (daily, weekly, monthly, annually, and occasionally).
- The materials, spare parts and tools required.
- Regular on-going costs of O&M.

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- Roles and responsibilities of various people.
- The type of knowledge and skills required for each task.

Planning ahead

Planning ahead for available spare parts and tools will avoid unnecessary delays in maintenance and repairs. The availability of spare parts and tools should be one of the main considerations in selected the most appropriate option. Although local materials may be free, most spare parts will need to be paid for, so each year the community should prepare an O&M budget and identify how the funds will be raised.

For O&M activities that happen daily or weekly, make sure the spare parts and tools are always available, either in the community or from the surrounding community, or the provincial water officer. For O&M activities that happen monthly or annually, holding stocks of spare parts and tools may be beyond the means of the community, so make plans well ahead of the activity to have these delivered at the time required. In most cases it is unnecessary and unaffordable to hold stocks of spare parts for responding to an unexpected breakdown, particularly if it is an expensive item. However, the O&M plan should at least identify where the spare part or tool can be obtained from in the quickest time, and have a plan for a temporary solution. Unexpected problems, appropriate responses and temporary solutions are covered in more detail in the next step in the framework.

It is important to keep records of monitoring and inspection results, and keep good maintenance **records** and any actions that have been taken in response to the results. The community water committee should be encouraged to regularly look over the results for signs of anything changing that relates to the water to become unsafe to drink or running out of water, so they can take timely action, e.g. a gradual decrease over the months in the water storage level as the drought season approaches, so drought management practices can commence.

During community discussions about operations and maintenance, it is the right time to ask about who knows about keeping the water supply functioning. Maybe ask the community “If the person who usually looks after the supply is not available today (or for a week, or longer), is there adequate instructions about how to run and look after the supply for whoever stands in?” These instructions are called ‘**Standard Operating Procedures**’, or SOP. They describe the “how to ...”. SOPs need to be written in a way that makes sense to the person who has to use them, and they need to be displayed at the place where they are used (not filed away in a draw). Common SOPs include:

- How to clean the water storage tank.
- How to carry out routine maintenance of the water pump.
- How to test the quality of the water (e.g. CBT test).

Another sort of plan describes the “what to do if ...”. These are called **Incident and Emergency Plans**.

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Incident Plans are more routine plans, restoring safe and secure drinking-water before it causes a major public health problem. These plans should be used when the early warning signs of routine monitoring and inspection alert you. For example, fixing a broken pipe, or shutting off the intake during heavy rain, or issuing a boil water notice in response to microbiologically contaminated water. An important incident plan that all communities should prepare is a **Drought Management Plan**. When followed, this plan will help the community to anticipate and prepare for the onset of a drought, and how to get through the drought.

Emergency Plans help respond when the water quality or quantity has become seriously bad. These plans typically need to be used with little-to-no warning. Examples include major microbiological or chemical contamination as a result of earthquakes, floods, cyclones, or volcanic activity.

Both levels of response plans require prompt action, so require pre-arranging so that everyone involved is aware of the plan and what they have to do.

Emergency plan responses often require rapid decisions to be made without a complete understanding of the situation. Someone needs to be responsible for making these decisions.

Materials:

- Flip chart, pins, glue tag
- Markers
- Notebooks, pens, rulers for participants
- Camera for the facilitator

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Section 5 – Operation, Monitoring and Maintenance

Operation and Monitoring Schedule

System Component (Tick if present)	Activity?	How Often?	Who?	Tools needed?	Cost?
5A Primary Water Source <input checked="" type="checkbox"/> Type.....					
5B Secondary Water Source <input type="checkbox"/> Type.....					
5C Water Storage <input type="checkbox"/> Type.....					
5D Water Treatment <input type="checkbox"/> Type.....					
5E Water Distribution <input type="checkbox"/> Type.....					
5F Primary Toilet Type <input type="checkbox"/> Type.....					
5G Secondary Toilet Type <input type="checkbox"/> Type.....					

Drinking Water Safety & Security Plan

Section 5 – Operation, Monitoring and Maintenance

Operation and Monitoring Schedule

System Component (Tick if present)	Activity?	How Often?	Who?	Tools needed?	Cost?
5A Primary Water Source <input type="checkbox"/> Type.....					
5B Secondary Water Source <input type="checkbox"/> Type.....					
5C Water Storage <input type="checkbox"/> Type.....					
5D Water Treatment <input type="checkbox"/> Type.....					
5E Water Distribution <input type="checkbox"/> Type.....					
5F Primary Toilet Type <input type="checkbox"/> Type.....					
5G Secondary Toilet Type <input type="checkbox"/> Type.....					

Section 5 – Operation, Monitoring and Maintenance

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Maintenance Schedule – Actions when something is broken.					
System Component (Tick if present)	Activity?	How Often?	Who?	Tools needed?	Cost?
5A Primary Water Source <input type="checkbox"/> Type.....					
5B Secondary Water Source <input type="checkbox"/> Type.....					
5C Water Storage <input type="checkbox"/> Type.....					
5D Water Treatment <input type="checkbox"/> Type.....					
5E Water Distribution <input type="checkbox"/> Type.....					
5F Primary Toilet Type <input type="checkbox"/> Type.....					
5G Secondary Toilet Type <input type="checkbox"/> Type.....					

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Notes for Facilitator: Step 6 Committee actions



The community water committee, on behalf of the community and DWSSP Team takes on important roles. These include responsibility for:

- Monitoring the implementation of the *Improvement Plan*.
- Monitoring the O&M activities, checking that the right things are being done at the right times. Good record keeping of O&M activities will assist.
- Reviewing the operational monitoring plan results, checking the indicators and trigger levels were effective, appropriate responses were made, and looking out for possible trends in problems over time.

If the DWSSP is not working, change something.

Materials:

- Flip chart, pins, glue tag
- Markers
- Notebooks, pens, rulers for participants
- Camera for the facilitator

Notes for Facilitator: Additional Resources

- Checklist for risk assessment
- DWSSP monitoring forms
- CCA/DRR Sanitary Survey
- Hygiene materials
- Maintenance material
- Management materials
- Your own resource materials

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Section 6 – Committee Actions

Community Training – What do you need to teach the community?

Activity	How Often?	Who?	What is needed?

Emergency – What will you do in an emergency?

Activity	How Often?	Who?	What is needed?

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Appendix 1

Water Quality Results

System Part	Position and Time	Temp (°C)	pH	TDS (mg/L)	Conductivity (µs/cm)	Turbidity (NTU)	Fluoride (mg/L)	Res Chlorine [if used] (mg/L)	E.Coli (#/100ml)	Total Coli (#/100ml)

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Appendix 2

Sanitary Survey Results – Household RWC or Stand Pipes

		System Component Number																				Total Num	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
Survey Questions	1																						
	2																						
	3																						
	4																						
	5																						
	6																						
	7																						
	8																						
	9																						
	10																						
	11																						
	12																						
Total Score																							

Drinking Water Safety & Security Plan

Appendix 2

Sanitary Survey Results – Toilets

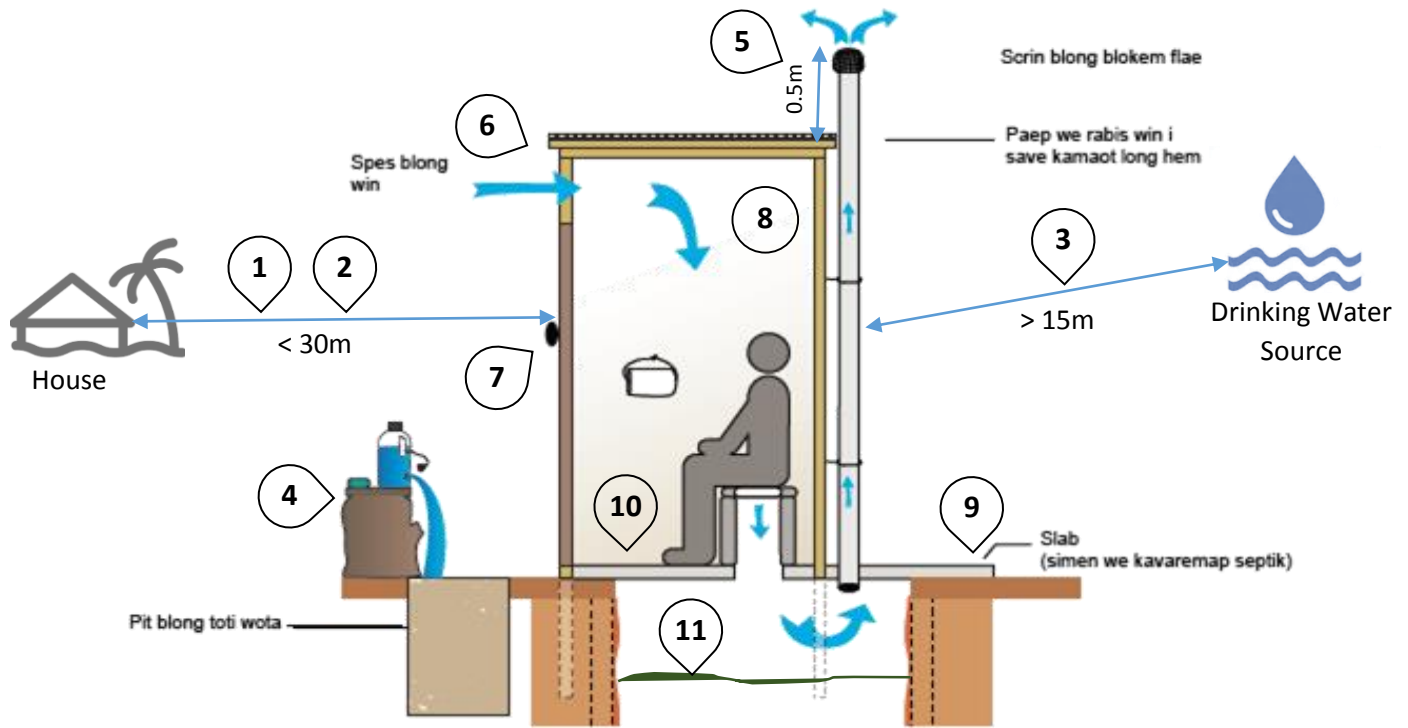
		System Component Number																				Total Num
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Survey Questions	1																					
	2																					
	3																					
	4																					
	5																					
	6																					
	7																					
	8																					
	9																					
	10																					
	11																					
	12																					
Total Score																						

Drinking Water Safety & Security Plan

VENTILATED IMPROVED PIT (VIP)

Toilet Owners Name: _____

Inspection date: _____



#

INSPECTION CHECK

CIRCLE ONE

#	INSPECTION CHECK	Y	N
1.	Toilet is located less than 30m from house served	Y	N
2.	There is a clear path between the house and the toilet	Y	N
3.	Toilet path has some lighting	Y	N
4.	Toilet is located down gradient of drinking water sources (well, river, spring), and at a minimum horizontal distance of 15m	Y	N
5.	There is a handwashing facility with soap within 3m of the toilet	Y	N
6.	The vent pipe is finishing 0.5m above the rooftop	Y	N
7.	The vent pipe has a fly net covering the end	Y	N
8.	There is a sufficient gap in the toilet housing to allow airflow into the toilet	Y	N
9.	Toilet has an appropriate door with internal lock and external locks to keep it secure	Y	N
10.	Toilet is reasonably dark inside and safe to use	Y	N
11.	Toilet slab is sealed to ground with concrete	Y	N
12.	Toilet floor is clean	Y	N
11.	There is more than 0.5 metres from the underside of slab to the top of waste pile	Y	N

Overall, this toilet should be:

UPGRADED

REPLACED

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Training Evaluation Form for *participants* in DWSSP Training

Date: _____

Title and location of training: _____

Trainer: _____

Instructions: Please indicate your level of agreement with the statements listed below:

Question	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
1. The objectives of the training were clearly defined.					
2. Participation and interaction were encouraged.					
3. The topics covered were relevant to me.					
4. The content was organized and easy to follow.					
5. The materials distributed were helpful.					
6. This training will be useful experience in my work.					
7. The trainer was knowledgeable about the training topics.					
8. The trainer was well prepared.					

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Question	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
9. The training objectives were met.					
10. The time allotted for the training was sufficient.					
11. The meeting room and facilities were adequate and comfortable.					

12. What did you like most about this training?

13. What aspects of this training could be improved?

14. Would you like to have refresher DWSSP trainings in the future?

15. Please share other comments and or expand on previous responses here

THANK YOU FOR YOUR FEEDBACK