

**Schools  
Guide to**

**Operation &  
Maintenance**

**Toilets,  
Rainwater  
Catchments and  
Handwashing  
Facilities**

**A RESOURCE FOR  
SCHOOLS WASH COMMITTEES**



Written by Live & Learn Environmental Education through the Resilient WASH in the Islands Region and Autonomous Region of Bougainville project in Papua New Guinea, supported by the Australian government and implemented by Plan International Australia and Live & Learn Environmental Education.

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**This manual is available online at:**

<https://livelearn.org/what/resources/schools-guide-operation-maintenance-resource-wash-committees>

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Additional material has been sourced from:

*Operation and Management manual for VIP latrines and rainwater harvesting systems in schools*, Caritas, Kenya, 2016

*Learning from Experience: Guidelines for locally sourced and cost-effective strategies to modify existing household toilets and water access*, World Vision and CBM Australia, Australian Aid, April 2018

*Accessibility and Safety Audit: School Latrine*, WaterAid UK, 2014

*Solomon Islands WASH in Schools Technical Guide* (draft), UNICEF and Solomon Islands Government, draft June 2018

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## Introduction

This guide is designed to be used by school Water, Sanitation and Hygiene (WASH) Committees, school teachers and student WASH Clubs to successfully operate and maintain school water, sanitation and hygiene facilities.

It should be read in conjunction with any formal government national standards on WASH in Schools, and government technical guidance on operation and maintenance of school water, sanitation and hygiene facilities.

An important role of the school WASH Committee is to oversee operation and maintenance of school water, sanitation and hygiene facilities.

This work includes things like:

- Cleaning of WASH facilities
- Safe waste disposal
- Stocking sanitary items
- Planning for routine maintenance
- Planning for possible disruptions due to breakages and emergencies

Operation and maintenance (O&M) involves allocating specific responsibilities to the school WASH Committee, school management, all teachers, students and the support of parents.

Effective operation and maintenance are essential for schools to meet national standards to make schools a safe place for students and staff, and to help schools meet goals for improving water, sanitation and hygiene facilities.



# WASH in School Standards

The school WASH Committee needs to know the national standards for WASH in Schools. For some South Pacific countries the relevant standards documentation for each country is given in the table below, and can be sourced online at <https://livelearn.org/what/resources/wash-schools-national-standards-fiji-kiribati-papua-new-guinea-solomon-islands>

Country	Standards document
<b>Fiji</b>	<i>Minimum Standards on WASH in Schools Infrastructure, Ministry of Education, National Heritage, Culture &amp; Arts</i>
<b>Kiribati</b>	<i>National Infrastructure Standards for Primary Schools, Ministry of Education</i>
<b>PNG</b>	<i>Policy and Standards for Water, Sanitation &amp; Hygiene (WaSH) in Schools 2018-2023, National Department of Education</i>
<b>Solomon Islands</b>	<i>Water Supply, Sanitation and Hygiene for Education Facilities in the Solomon Islands, Ministry of Education and Human Resources Development</i>
<b>Vanuatu</b>	<i>WASH in Schools Improvement Plan Schools Guide, WASH in Schools Improvement Plan Technical Manual (Nov 2019 in draft)</i>

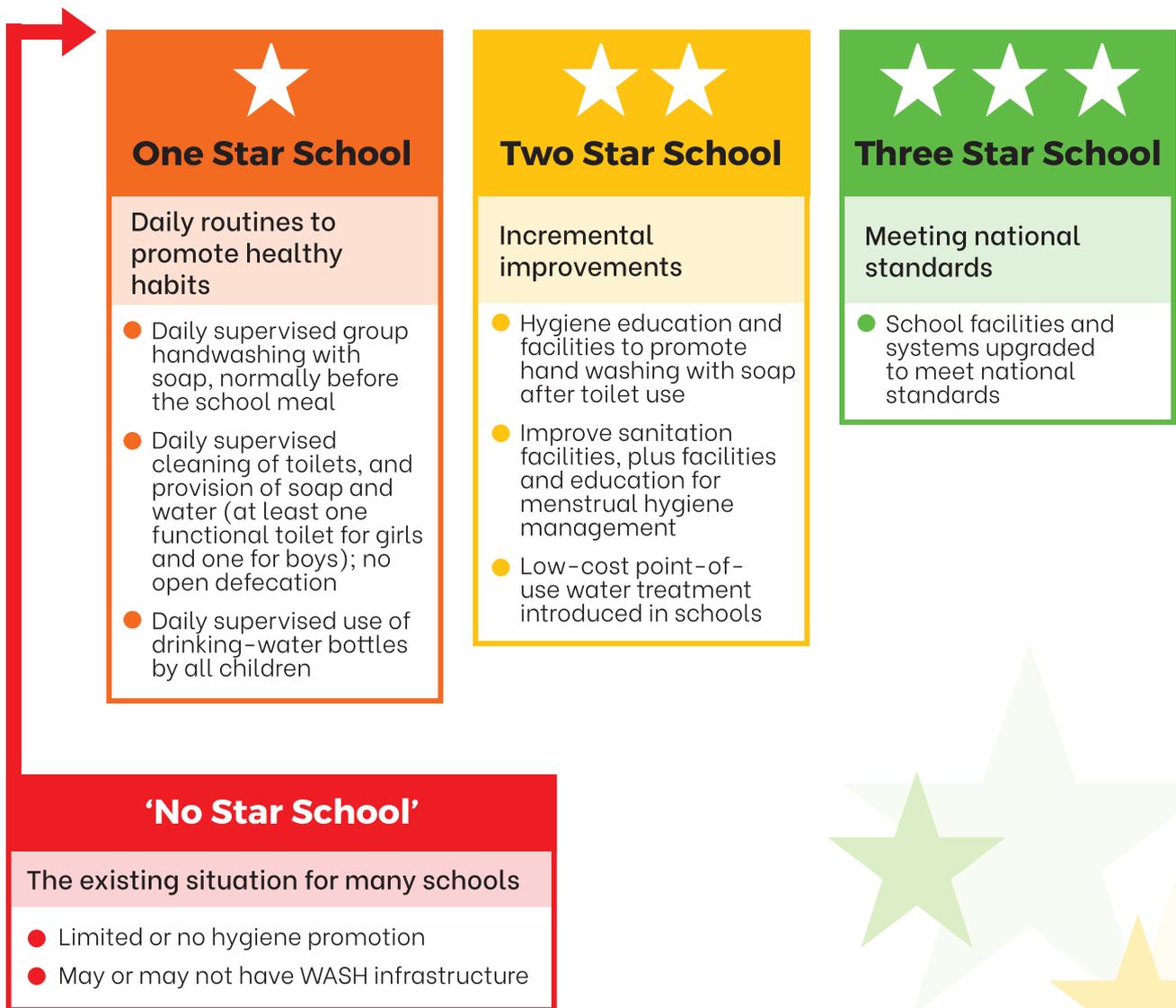
The school WASH Committee also needs to know the national WASH in Schools Operation & Maintenance guidelines. The relevant guidelines to O&M for particular countries are given in the table below. Note that some guidelines are not restricted to particular countries and can be used in a variety of settings. At the time of publication some of these guidelines were still in draft form.

<b>Solomon Islands</b>	<i>Technical Requirements Manual for School Wash Facilities (SIBLE)</i>	Nov 2019 Draft – see Solomon Islands government education authorities for final version
<b>Kiribati</b>	<i>WASH Safety Planning Sanitary Survey Checklists (Kiribati)</i>	<a href="https://livelearn.org/what/resources/wash-schools-technical-designs-fiji-kiribati-solomon-islands-and-vanuatu">https://livelearn.org/what/resources/wash-schools-technical-designs-fiji-kiribati-solomon-islands-and-vanuatu</a>
<b>Vanuatu</b>	<i>Vanuatu WASH in Schools Improvement Plan Schools Guide</i>	Nov 2019 in Draft – see Vanuatu government education authorities for final version
<b>All countries</b>	<i>UNICEF WASH Resilience Guidelines Toolkit and Case Studies</i>	<a href="https://riscon.solutions/wp-content/uploads/2019/02/181212-Unicef-WASH-Resilience-Guideline.pdf">https://riscon.solutions/wp-content/uploads/2019/02/181212-Unicef-WASH-Resilience-Guideline.pdf</a>

If your country does not have any formal standards or guidelines, or the standards and guides are lacking detail, we recommend following the regional UNICEF Three Star Approach to WASH in Schools. The guides listed above offer practical advice, building on the Three Star standards.

# Three Star Schools Framework

WASH in Schools standards in Fiji, Kiribati, Papua New Guinea, Solomon Islands and Vanuatu are informed by the Three Star School framework, which enables schools to implement incremental progress towards achievement of national standards.



# Summary of National Standards

Every school WASH Committee should have a copy of the formal national standards. Here is a summary of key standards from different countries as at January 2020:

## Water

	Fiji	Solomon Islands	Kiribati	PNG
<b>WATER</b>				
<b>Quantity (minimum) ratios</b>	<p>Potable per day: 1 L per day pupil, 2 L per boarding pupil, 4 L per teacher</p> <p>Non-potable per day: 5-10 L per day pupil, 20 L per boarding pupil</p>	<p>Potable per day: 5 L per student. Students required to bring water bottle. Drinking tap/student ratio: 1:50</p> <p>Non-potable: 20 L per student for pour toilets, 30 L for flush toilets. Boarding schools 50-100 L per student.</p>	<p>Potable: 2 L per student per day, students and teachers encouraged to bring own when necessary</p> <p>1600 L tank per 50 people for potable water. 1600 L tank per 20 people when including handwashing.</p>	<p>Day schools: Minimum of 5 L per day per student</p> <p>Boarding schools: Minimum 20 L per day per student</p>
<b>Quality</b>	<p>Potable: meets FNDWS: 'odourless, colourless, tasteless'. Mandatory testing once a year.</p>	<p>Meets WHO standards and tested once a year, incorporated into WASH plans</p>	<p>'safe, accessible, sufficient'</p> <p>Inspection by health inspector once a term</p>	<p>Water quality testing should be carried out before constructing any new type of water source</p> <p>Drinking water should be 100% E-coli free</p>
<b>Supply</b>	<p>5000 L tank in addition to mains. 2 x 5000 L for schools as emergency shelters, to be maintained by staff</p>	<p>Boarding schools require piped supply and back-up</p>	<p>School to provide and maintain rainwater tanks</p>	<p>All schools should have rainwater tanks. Rainwater tanks should have back up storage capacity of 10 liters per child per day for at-least 30 days for a boarding school and 5 liters per child/user per day for at-least for 30 days.</p>

# Sanitation

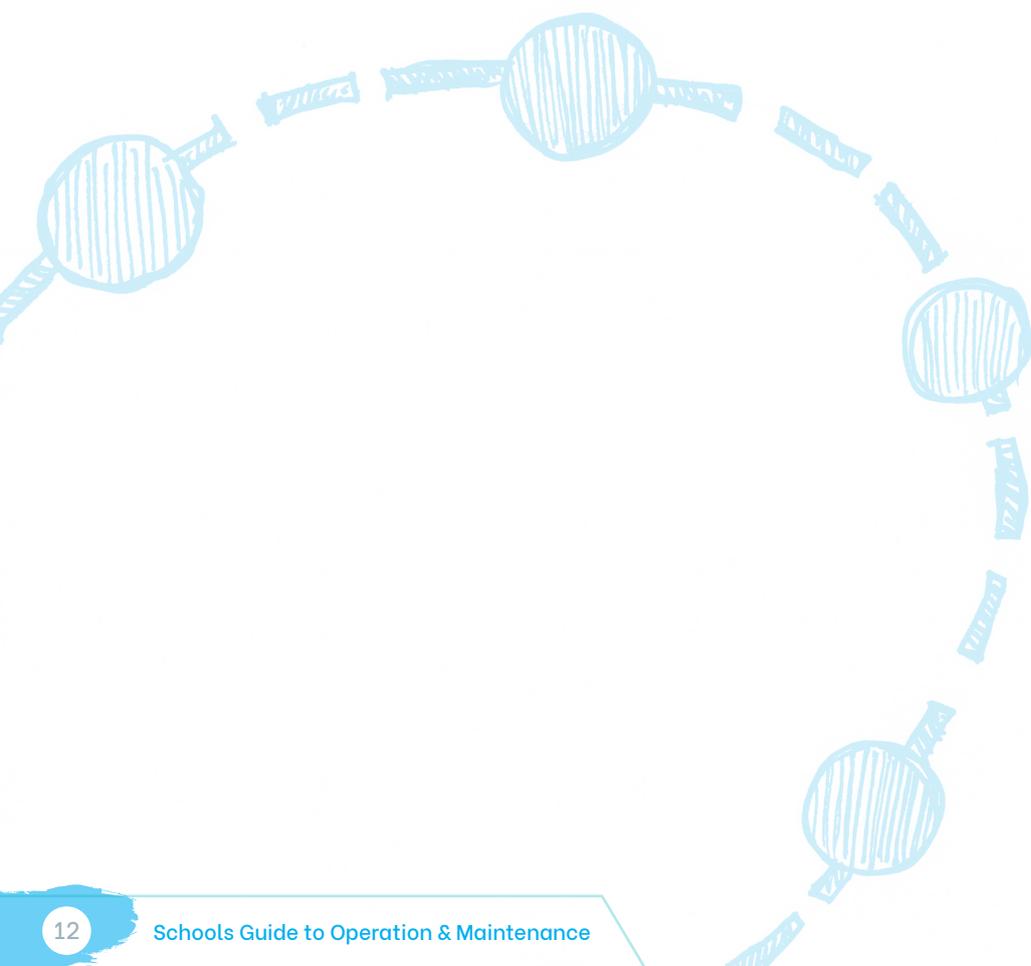
	Fiji	Solomon Islands	Kiribati	PNG
<b>SANITATION</b>				
<b>Quantity, toilet ratios</b>	Girls – 1:20 Boys – 1:33, 1:50 (urinal)	Day schools: 1:30 (girls), 1:40 (boys), Boarding schools: 1:25 (girls), 1:35 (boys), 1:50 (boys' urinals)	Girls – 1:40 Boys 1:60	Day schools: Girls – 1:25 Boys – 1:40, 1:40 (urinal)  Same ratio for boarding schools  Gender separated
	Staff 1:20 separate male and female	Staff 1:20 separate male and female	Staff 1:25	Staff 1:20 separate male and female
<b>Disabled access</b>	1 toilet wheelchair access  Special needs schools toilet/ student ratio 1:15, 1 wheelchair access cubicle per sex	1 toilet wheelchair access per block	Disability access required	Toilet building must be inclusive and must have one toilet cubicle suitable for people living with special needs. It should be accessible with ramp, guard/ hand rail and must also be suitable to use for menstrual hygiene needs. Each toilet block must have at least one toilet suitable for persons living with a disability.
<b>Quality</b>	Comply with national building codes  Min. VIP latrine	Min. VIP latrine	Min. VIP latrine. Schools with piped water are to provide flushing or water seal toilets	Min VIP latrine with a cleanable slab, incremental improvement made based on student population growth. Pit must be located at -least 30 meters away from drinking water source.
<b>Construction</b>	Adequate light and ventilation, privacy, lockable doors, appropriate location, mandatory heights of toilets and washbasins	Adequate light and ventilation, privacy, lockable doors, appropriate location, outside screening walls, separation of staff and student blocks	Well-lit and ventilated, clean and maintained, doors open outwards, appropriate location.	Adequate light and ventilation, privacy, lockable doors, appropriate location, mandatory heights of toilets and washbasins. Toilets must be located next to or within 30m from classrooms. The path to the toilet should be gentle and not slippery, clear and safe (non-hazardous) and adequately lit.

# Hygiene

	Fiji	Solomon Islands	Kiribati	PNG
<b>HYGIENE</b>				
<b>Ratios</b>	Water tap/ student ratio: 1:50,  Water tap/ teacher ratio: 1:20	Handwashing facility/ student ratio: 1:100, one per toilet block, one in proximity to kitchen		Water tap/student ratio 1:100 urban schools, 1:50 rural schools, 1:50 boarding schools
<b>MHM</b>	One cubicle with showering/ washing facility, provide sanitary items, sanitary bins in toilet cubicles	One cubicle with showering/washing facility, provide sanitary items, sanitary bins in toilet cubicles	Provide MHM programs	One cubicle with showering/washing facility, provide sanitary items, sanitary bins in toilet cubicles Waste management option must be decided in consultation with the girls and school staff.
<b>Activities</b>	Daily handwashing with soap, teeth brushing	Handwashing with toilet use, before meals	Daily handwashing with soap, teeth brushing	Cleaning materials such as detergent, bucket, brushes, gloves and gum boots must be made available. Environment surrounding the toilet must be clean and attractive. The toilet wall must be painted bright with hygiene messages.
<b>Education</b>	Toilet use, handwashing, waste disposal and cleaning	MHM, general hygiene, teachers to model positive behaviour	Hygiene practices incorporated into school practices, inclusive participation	Hygiene Education lessons in the school classes, daily supervised group hand washing and daily supervised cleaning of toilets must be practiced by school. Hygiene Education must be supported with funds and resources through the SLIP and other funding sources

# Management

	Fiji	Solomon Islands	Kiribati	PNG
<b>MANAGEMENT</b>				
<b>Supervision</b>	WASH champion, WASH in planning and budgets mandatory	WASH committee, WASH in planning and budgets, maintenance master, WASH clubs	Students encouraged to lead WASH and MHM activities and inspect facilities, teachers to monitor progress	WASH champion, WASH in planning and SLIP budgets mandatory, caretaker for maintenance in the school, WASH Clubs established
<b>Maintenance</b>	Cleaning allocated on equitable basis. Assessment checklist includes functionality of toilets	Toilets to be regularly cleaned and maintained, rostering implemented	Rainwater tanks maintenance to be overseen by school committees, Ministry of Public Works and Utilities to provide services	School Learning Improvement Plan, must also budget for operation and maintenance to repair broken/damaged components such as broken doors, leaking roof, broken/cracked wall, sinks, taps, drainage, showers, lights, windows, rubbish bins, or oven/ firebox etc.

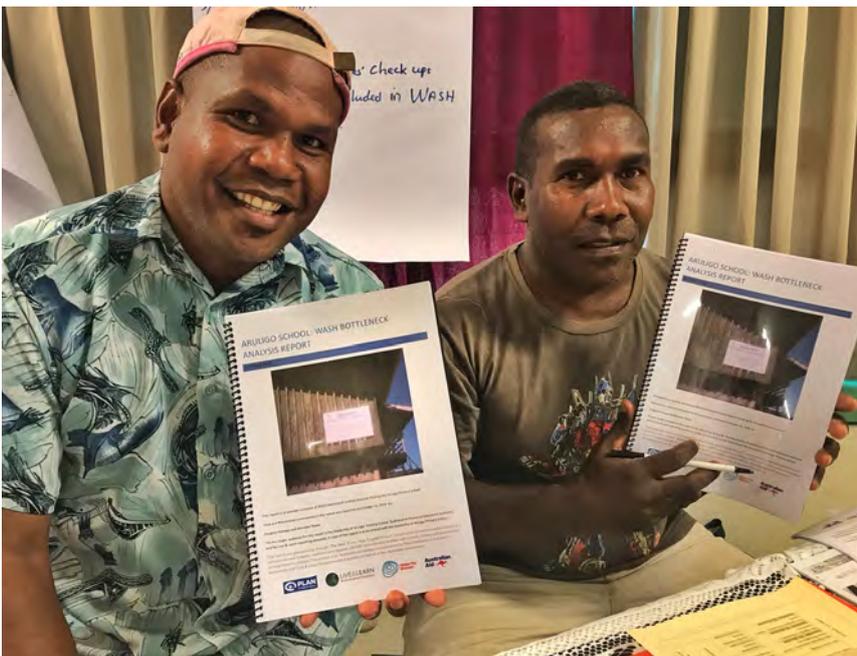


# School Bottleneck Analysis Report

If your school is working with Live & Learn Environmental Education your school will have participated in a Bottleneck Analysis and you will have access to a School Bottleneck Analysis Report. This report is a valuable summary of how your school measured against national standards, with priority areas for improvement highlighted.

The School Bottleneck Analysis Report was then used by the school leadership to develop a WASH Improvement Plan. This WASH Improvement Plan contains the goals that your school has set for improving water supply, sanitation and hygiene facilities and services, and information on sources of funds for operation and maintenance supplies, and planned budget timeframes for larger scale maintenance for school WASH facilities.

Both these documents – the School Bottleneck Analysis Report and the school WASH Improvement Plan – are important and useful for good WASH operations and maintenance planning and implementation.



The background features a series of horizontal, wavy bands in various shades of blue and teal, creating a water-like effect. In the center, there is a large, light blue circle with a dotted white border. Inside this circle, the words "Water Supply" are written in a bold, blue, sans-serif font.

# Water Supply

# Sources of drinking water – rivers and streams

Usually there are four main sources of drinking water that a school may use:



## Rivers and streams

Our rivers and streams can originate from springs (water coming out of the ground), or from rainwater runoff from the mountains and hills draining to the lowest point of the land.



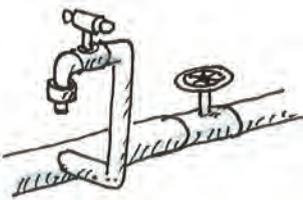
## Bores and ground wells

Bores and ground wells are holes drilled or dug down to natural stores of water under the ground (groundwater).



## Rainwater

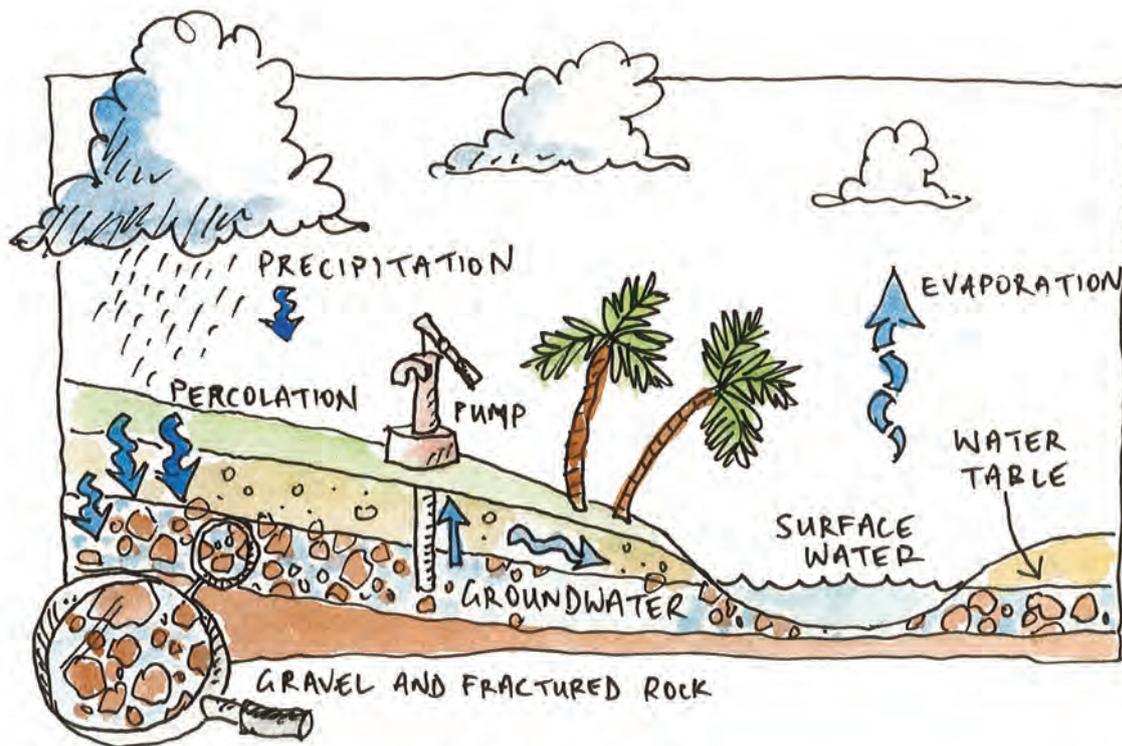
Rainwater is water that has fallen as rain. It can be collected from a corrugated iron roof or another structure and stored in a container like a drum or rainwater tank.



## Piped water

Piped water can come from springs, rivers, underground wells, tanks or dams. With a bore, a hole is drilled down into water stored under the ground and the water is pumped out into tanks. Pipes then go from these tanks to schools and houses in the community. If the river is the source of piped water, it can be pumped or gravity fed into storage tanks and then fed into a system of pipes to the community.

# Sources of drinking water – understanding groundwater



Groundwater is the water found underground in the cracks and spaces in soil, sand and rock. It is stored in these cracks and spaces, and moves slowly through soil, sand and rocks called aquifers. How does the water get under the ground? It comes from the rain that falls onto forests and the land and seeps down into the cracks beneath the surface of the earth. Groundwater can come to the surface at a natural spring, or into lakes and streams. We can also use the groundwater when we dig a well or drill a borehole.

How far down is the groundwater? This depends on many things, like how sandy or rocky the ground is where you live, and how much rain falls each year. We call the top boundary of the groundwater the water table. The water table is where we measure how far down the groundwater is.

Shallow wells may go dry if the water table falls below the bottom of the well. The water table near a river is usually high, so if you dig a well the water is usually not too far down. If the soil is very sandy or loose it can be very easy for the groundwater to be polluted.

Groundwater can be polluted by buried rubbish, septic tanks, dry pit toilets, and from overuse of fertilizers and pesticides. If the groundwater becomes polluted, it is not safe to drink it. It is very easy to contaminate groundwater, but there are also easy ways to keep groundwater safe from contamination.

# Sources of drinking water – rainwater

Most of the water that we use has at one stage fallen as rain, as part of the water cycle. But when we use the term **rainwater**, we mean water that has fallen as rain and has been collected from a corrugated iron roof or another structure and stored in a container such as a rainwater tank, for drinking or washing.



Most people think that rainwater is always safe to drink. Mostly this is true – if the air where you live is clean then the rainwater will also be clean. But there are things we can do to make sure the water is safe – discussed further in the table on page 24 and page 39.

# How does climate change affect our water supply?

Earth has its own control system. The oceans, the land, the air, the plants and animals, and the energy from the sun all affect each other to make everything work in harmony. Nothing changes in one place without changing something in another place. The overall effect gives us our global climate.

**Climate:** The average pattern of weather conditions over a long period of time. Climate isn't weather – weather changes daily.

**Global warming:** The increase in Earth's average temperature over a long period of time.

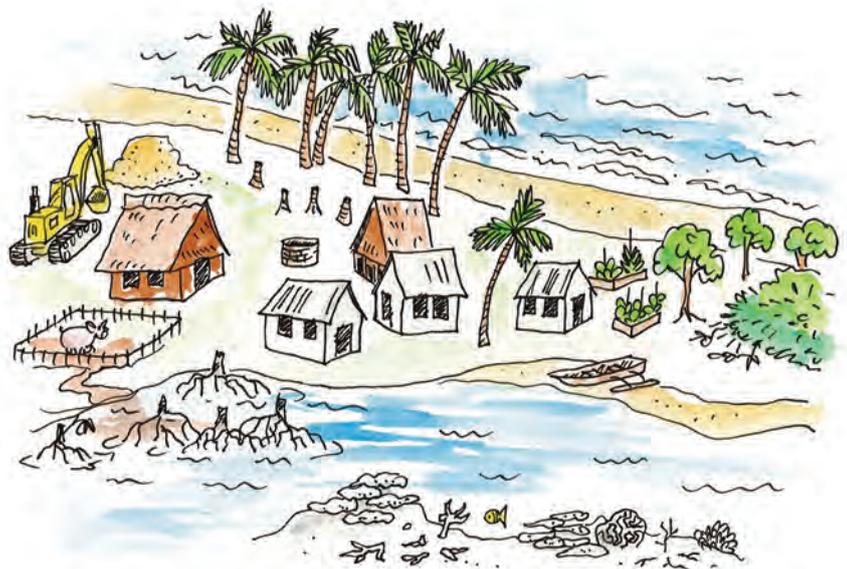
**Carbon dioxide:** A gas released by the burning of coal, natural gas, oil and wood that traps heat in the atmosphere.

**Fossil fuels:** Coal, oil and natural gas, which come from the breakdown of ancient plants and animals in the ground.

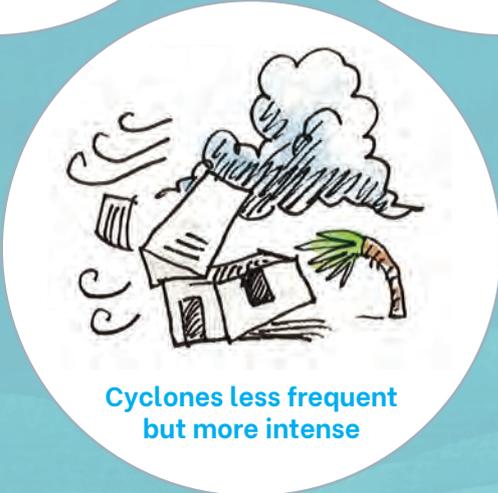
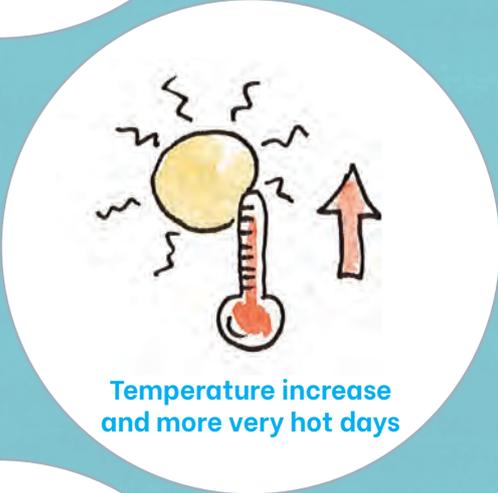
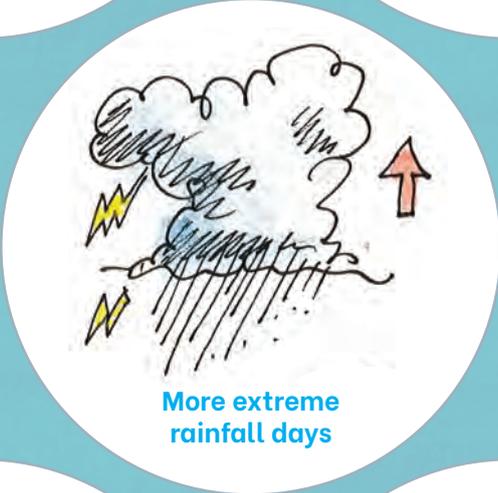
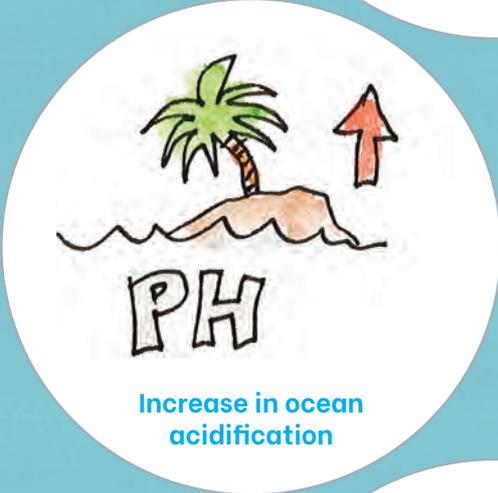
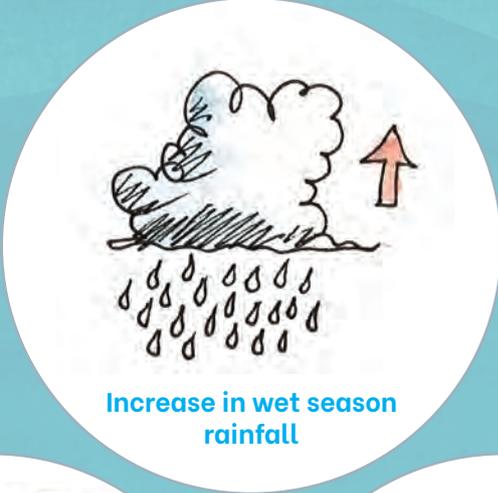
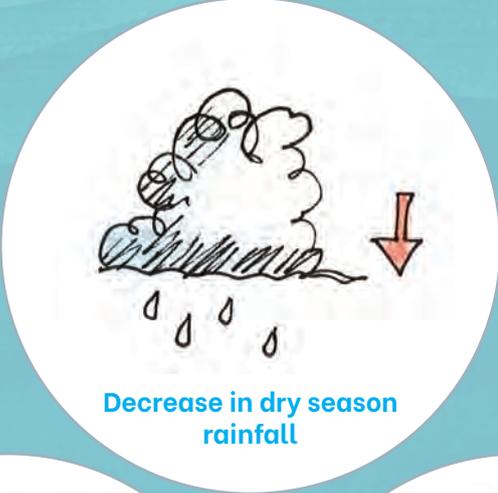
The Earth is now warming at a much faster rate due to human causes. Things that are increasing the warmth of the Earth include:

- Generating electricity through burning fossil fuels
- Driving cars and trucks that use petrol or diesel
- Flying planes that use aviation fuel
- Running factories on electricity
- Logging forests
- Forest fires

These activities release carbon dioxide into the air, which act like a blanket in the sky, trapping in the warmth of the sun's rays. When the air around the Earth gets warmer the global climate starts to change. A warmer global climate includes more unpredictable and unreliable weather patterns, and more extreme weather, such as stronger storms.



# Future Climate



# How does a changing climate affect our water supply?

## 1 SEA LEVEL RISE

*There are two reasons why sea levels are rising.*

### Firstly

At the north and south poles of the Earth most of the land and sea is covered with ice. A warming climate makes the air at the north and south poles warm enough to melt some of the ice. When this ice melts more water goes into the world's oceans.

### Secondly

The top parts of the ocean, down to about 700 meters, have absorbed most of the extra heat in the air generated through climate change. Warm water takes up more space than cool water, which means the sea level rises higher onto your local beach.

### Impact on drinking water:

Sea level rise can cause stronger storm surges, flooding of areas close to the sea, and saltwater moving inland and contaminating underground drinking supplies such as wells and boreholes.



## 2

## RAINFALL

Changes in weather patterns can mean less dry season rainfall and more wet season rainfall. This can also mean more extreme rainfall days, hot days and stronger cyclones. Droughts and floods are more likely to occur.

*If too much rain falls:*

- ◆ landslides may occur and contaminate or block water supplies
- ◆ wells and rivers may be flooded, so the water is dirty
- ◆ pit toilets may get flooded and contaminate drinking water supplies
- ◆ flood waters may contribute to increase in diseases

**too  
much**

### High rainfall effects



*If not enough rain falls and there is drought:*

- 🔹 springs may dry up
- 🔹 wells may be empty
- 🔹 rainwater tanks may not fill up quickly enough
- 🔹 rivers or creeks may dry up, or get so small and full of mud they can't be used for drinking water

not  
enough

## Low rainfall effects



# Things we can do to protect our water supply in a changing climate

We can do many things to protect our water supply in a changing climate. Following are some examples:

Problem	Adaptation Solution
Springs dry up, wells are empty	<ul style="list-style-type: none"> <li>Put rainwater guttering on all permanent buildings and install extra water tanks to catch rain during more frequent storms.</li> </ul>
Landslides during heavy rain that contaminate water supplies	<ul style="list-style-type: none"> <li>Keep forests (don't cut them down!) as trees hold soil tightly together, and love eating carbon dioxide in the air.</li> <li>Plant trees in areas where there has been logging, or where erosion is a problem.</li> </ul>
Flooded toilets contaminating water sources	<ul style="list-style-type: none"> <li>Build all toilets 2 metres above ground water level, and at least 30 metres away from all water sources.</li> <li>Relocate all septic tanks to higher ground if necessary.</li> </ul>
Floodwaters causing diseases	<ul style="list-style-type: none"> <li>Make sure the school and community areas have good drainage so that rainwater can move away quickly.</li> <li>Plant trees, shrubs and gardens that absorb water quickly and hold soil together.</li> </ul>
Short-term water shortages during cyclones and storms	<ul style="list-style-type: none"> <li>Make sure the school is ready to be a local evacuation centre for emergencies, with a safe space on higher ground that has emergency supplies.</li> </ul>



# Understanding hazards for safe drinking water

How does the water get there?	What might make the water unsafe?	How can we make it safe?
<b>Rainwater tank</b>		
Rain falling on roof, into gutters and then into pipes	Dirt on the roof, bird poo and leaves on the roof; dirty, uncovered water collection containers; dirty hands touching taps or water collection containers	<ul style="list-style-type: none"> <li>• No leaking taps</li> <li>• Good pipes into the tank</li> <li>• Clean roof</li> <li>• Clean water intake screen</li> <li>• Tank is not cracked or leaking</li> <li>• Keeping water collection containers clean, and covered with lids</li> <li>• Washing hands with soap before collecting water</li> </ul>
<b>Shallow wells</b>		
Groundwater fills the well	Lack of rainfall reducing groundwater levels, animal waste washed into the well, human waste from open defecation or toilets built too close to the well, dirty hands collecting water in dirty containers	<ul style="list-style-type: none"> <li>• Regular cleaning of area around well</li> <li>• Regular maintenance of any pumps to make sure they are working well</li> <li>• Keeping water collection containers clean, and covered with lids</li> <li>• Washing hands with soap before collecting water</li> </ul>
<b>Water barrels</b>		
Dam, spring, reservoir, pipeline, containers	Waste and germs from animals, animals getting in barrels, breakages in pipelines bringing in sediment, dirty hands collecting water in dirty containers	<ul style="list-style-type: none"> <li>• Well-maintained pipes and taps</li> <li>• No cracks or holes in barrel, sealed from animals</li> <li>• Keeping water collection containers clean, and covered with lids</li> <li>• Washing hands with soap before collecting water</li> </ul>

## Surface water

Rainfall cycle, rivers, streams, creeks

Animal waste in the water, sediment from erosion or land clearing, chemicals in water, humans bathing or going to the toilet in the water

- Access to water source is safe
- Animals (pigs, chickens, etc.) are kept in pens so they can't get into the water
- Keeping water collection containers clean, and covered with lids
- Washing hands with soap before collecting water

## Tap-stand

Dam, spring, reservoir, pipeline

Contamination in pipeline to tap-stand, animal waste around tap-stand, dirty hands collecting water in dirty containers

- Secure, proper pipe and taps without leaks
- Good drainage around tap-stand
- Keeping water collection containers clean, and covered with lids
- Washing hands with soap before collecting water



# Conducting a water safety audit at school

## Why carry out a water audit?

An audit is simply a series of questions and observations that we use to find out more about drinking water in the school, how it is used, and whether it is at risk of being contaminated. We do a water audit to get a better understanding of what we need to do to make sure the school drinking water is clean and healthy.

We want to know the following things:

- How is water being used?
- Where does the water come from?
- Is the water at risk of being contaminated by disease-causing germs?



# WATER AUDIT

Fill in the boxes below where they apply to your school

<b>Water source</b> (where do you get your drinking water from?)	<b>What do you use it for?</b>	<b>Does it ever run out?</b>	<b>Do you think it is safe to drink? (explain)</b>
<b>Water tank</b>			
<b>Well</b>			
<b>River</b>			
<b>Other</b>			

## Rainwater Tanks

<b>Condition of gutters and roofs (if present)</b>	Please tick	<b>How often are these things maintained/cleaned?</b>	Please tick
Very good – very few leaves, no dirt or evidence of animals		Often (every 1-2 months)	
Good – few leaves, little dirt or evidence of animals		Occasionally (twice a year)	
Poor – many leaves, some dirt, evidence of animals		Rarely (once a year) or Never	

Is there an intake screen on the tank?  Yes  No

How often is it cleaned?

.....

.....

.....

.....

Is there any uncovered opening on the rainwater tank?  Yes  No

.....

.....

.....

.....

## Well water

What kind of well do you have?

Drilled (bore)  Dug  Open  Sealed

What types of toilets are “nearby” in the community (include neighbouring properties)	Approximate distance from well (meters)	Are these uphill, downhill or on flat ground?
Pit/VIP toilet		
Septic tank		
Area where people defecate (e.g. in the bush or river)		

## River

1. How many meters is the school from the nearest creek or river?

2. How is the river used by people in the school? (You may tick more than one answer)

- |                                       |                                       |   |
|---------------------------------------|---------------------------------------|---|
| <input type="radio"/> Drinking        | <input type="radio"/> Washing clothes | <input type="radio"/> Cleaning dishes             |
| <input type="radio"/> Fishing         | <input type="radio"/> Washing cars    | <input type="radio"/> Disposing of waste water    |
| <input type="radio"/> Dumping rubbish | <input type="radio"/> Toilet          | <input type="radio"/> Providing water for animals |

## Pipes and taps

Do you have access to piped water via tap?  Yes  No

How many people share this tap? .....

Is the area around the tap-stand fenced?  Yes  No

Describe

.....

.....

.....

.....

Is there water on the ground near the tap-stand?  Yes  No

Describe

.....

.....

.....

.....

What types of toilets are nearby? (including in neighbours' properties)	Approximate distance from toilet to tap?	Are these toilets uphill, downhill or on flat ground?
Pit/VIP toilet		
Septic tank		
Area where people defecate (e.g. in a bush or river)		
Other (please explain)		

# Understanding the water safety audit

Doing a water safety audit on the school's drinking water source is a good way for the WASH Committee and others to make sure their drinking water at school is safe.

Rainwater tanks	
Why might it be unsafe? <i>Problems seen from the audit</i>	How can we make it safe? <i>Actions you recommend for the school</i>
Well water	
Why might it be unsafe? <i>Problems seen from the audit</i>	How can we make it safe? <i>Actions you recommend for the school</i>
Surface water	
Why might it be unsafe? <i>Problems seen from the audit</i>	How can we make it safe? <i>Actions you recommend for the school</i>
Tap-stand	
Why might it be unsafe? <i>Problems seen from the audit</i>	How can we make it safe? <i>Actions you recommend for the school</i>

# Summary of WASH in Schools National Standards – Water Supply

## Water

	Fiji	Solomon Islands	Kiribati	PNG
<b>WATER</b>				
<b>Quantity (minimum) ratios</b>	<p>Potable per day: 1 L per day pupil, 2 L per boarding pupil, 4 L per teacher</p> <p>Non-potable per day: 5-10 L per day pupil, 20 L per boarding pupil</p>	<p>Potable per day: 5 L per student. Students required to bring water bottle. Drinking tap/student ratio: 1:50</p> <p>Non-potable: 20 L per student for pour toilets, 30 L for flush toilets. Boarding schools 50-100 L per student.</p>	<p>Potable: 2 L per student per day, students and teachers encouraged to bring own when necessary</p> <p>1600 L tank per 50 people for potable water. 1600 L tank per 20 people when including handwashing.</p>	<p>Day schools: Minimum of 5 L per day per student</p> <p>Boarding schools: Minimum 20 L per day per student</p>
<b>Quality</b>	<p>Potable: meets FNDWS: 'odourless, colourless, tasteless'. Mandatory testing once a year.</p>	<p>Meets WHO standards and tested once a year, incorporated into WASH plans</p>	<p>'safe, accessible, sufficient'</p> <p>Inspection by health inspector once a term</p>	<p>Water quality testing should be carried out before constructing any new type of water source</p> <p>Drinking water should be 100% E-coli free</p>
<b>Supply</b>	<p>5000 L tank in addition to mains. 2 x 5000 L for schools as emergency shelters, to be maintained by staff</p>	<p>Boarding schools require piped supply and back-up</p>	<p>School to provide and maintain rainwater tanks</p>	<p>All schools should have rainwater tanks. Rainwater tanks should have back up storage capacity of 10 liters per child per day for at-least 30 days for a boarding school and 5 liters per child/user per day for at-least for 30 days.</p>

# Rainwater Catchment Systems – Operation & Maintenance

In rooftop rainwater harvesting, the rainwater is collected from the roof of the building, for example a classroom. The water will be stored in an open or closed tank. This method has a relatively low investment cost, depending on the kind, size and number of storage tanks.

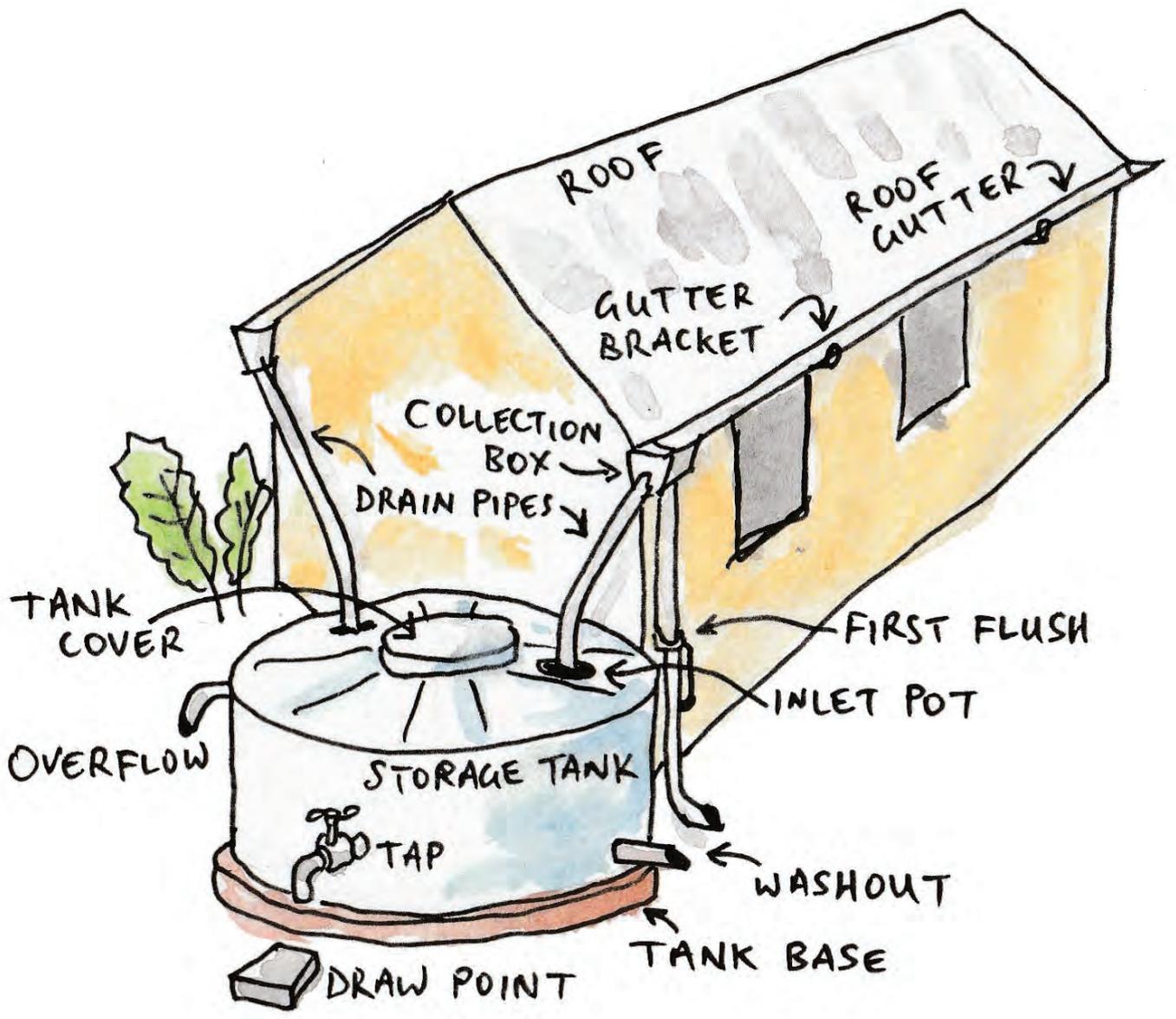
As part of their national WASH in Schools standards most Pacific Islands countries recommend schools install rainwater tanks on all suitable buildings. Advantages of water supply from rainwater harvesting systems at schools are:

- Apart from the initial purchase cost, the provisions for operation and maintenance are relatively low
- It reduces the burden of children having to fetch water from unsafe sources and having to bring drinking water to school daily
- It can provide supplementary water for other purposes such as handwashing and for school gardens

## Components of Rainwater Catchment and Handwashing Facilities

The system consists of six major parts:

- 1 **Roof catchment:** the surface that receives rainfall directly
- 2 **Gutters and down pipe:** transport water from the catchment to the storage
- 3 **Brackets** hold gutter, fixed to fascia board
- 4 **First flush:** acts as filter, preventing water from the roof catchment that might be contaminated, especially after it has not rained for several days, from entering the storage tank
- 5 **Inlet pot** with filter that is placed at the top of the storage tank to prevent particles, leaves and other bigger objects from entering the storage tank
- 6 **Storage tank:** where the water is kept before it is used, fitted with a tap to access water.



# Using Rainwater Catchment and Handwashing Facilities

Rainwater is relatively free from impurities, however wind-blown dirt, leaves, faecal droppings from birds and animals, insects and contaminated litter on the roof can be sources of contamination.

The quality of rainwater may deteriorate during harvesting, storage and use, especially if stored in open tanks. It is important to follow hygiene measures during storage of water and when drawing water from the tank or at the point of use to avoid health risks.

Well-designed rainwater harvesting systems with clean catchments and storage tanks supported by good hygiene at point of use can offer drinking-water with very low health risks.

To minimise the risk from rainwater harvested from roofs it is recommended to:

- Include and use a first-flush filter to drain off the water that falls on the roof when it first starts to rain, after dirt might have settled there
- Regular monitoring of the water quality, with the possibility of filtration and/or chlorination if needed

If washing hands at the tank, water should be taken only from the valve or tap.

Putting a lid or cap on water storage containers helps keep water free from contamination from dust or insects. When collecting drinking water in containers always make sure hands have been washed with soap and water.

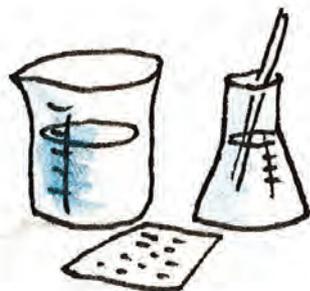


There are ways that to treat stored water in order to kill any bacteria and microorganisms that can cause disease:



Boil water with lots of bubbles for one minute, let it cool and put it in a clean container with a lid before you drink it.

Put clean-looking water into a clear plastic bottle, put the lid on and shake the bottle, then leave it in the sun for 6 hours (or 2 days if it is cloudy). The sun kills any bacteria in the water.



Chemicals such as chlorine can be added to water to purify it.

## School Water Supply Operations Plan

Risks can be minimized by good design and operation and maintenance. The major concern is the prevention of contamination of clean water. Areas that should be covered in a School Water Supply Operations Plan include the following:

- Checking taps and pipes for leaks and worn or loose fittings
- Cleaning of tanks and guttering so they are free from debris
- Checking for bad smell, colour and/or blockages
- Ensuring there is adequate drainage at all water points
- Check levels of water consumption against storage capacity
- Testing water quality

## School Water Supply Maintenance

To keep the school water supply systems usable for a long time the structures need to be maintained. A good first step is for the system to be checked regularly. Depending on what you find during the checks some parts might need repair or replacement.

Through regular inspections it will be clear which areas need regular attention. The different operation and maintenance checklists below will help to know what to check, by whom and when. These checklists should be adapted by the WASH Committee and put into a plan to indicate what repairs can be done by the caretaker and for which work external help is needed. The responsibility for making the repairs needs to be spread across the school while also identifying school staff members or community members whose skills (e.g. carpentry, plumbing, machinery operation) will be particularly valuable. Two example plans follow the checklists.

## Community Water Supply

Frequency	Maintenance task
Daily	<ul style="list-style-type: none"> <li>• Check there is water at the school tap(s)</li> </ul>
Weekly/Monthly	<ul style="list-style-type: none"> <li>• Meet with community WASH committee to discuss operation and maintenance of the community source and supply</li> </ul>
Annually	<ul style="list-style-type: none"> <li>• Participate in annual sanitary survey of community water supply</li> </ul>

## Well Facilities

Frequency	Maintenance task
Daily	<ul style="list-style-type: none"> <li>• For unprotected wells remove any rubbish that may have fallen down the well</li> </ul>
Weekly/Monthly	<ul style="list-style-type: none"> <li>• On protected wells – check that the well is still protected (i.e. a cover over the well head, concrete apron, fenced from people and animals) and cleaned</li> </ul>
	<ul style="list-style-type: none"> <li>• On protected wells – check water pump (i.e. hand, fuel or solar pump) is working and cleaned</li> </ul>
	<ul style="list-style-type: none"> <li>• On protected wells – check good drainage with no water ponding around the well head</li> </ul>
	<ul style="list-style-type: none"> <li>• On unprotected wells – check that the bucket and rope or pump (i.e. hand, fuel or solar) is working and cleaned.</li> </ul>
	<ul style="list-style-type: none"> <li>• On unprotected wells – check that the area around the well head is cleaned and has good drainage.</li> </ul>
Annually	<ul style="list-style-type: none"> <li>• Check water quality (external support)</li> </ul>

## Spring Water Facilities

Frequency	Maintenance task
Weekly	<ul style="list-style-type: none"> <li>Remove any rubbish that may have accumulated around the spring source</li> </ul>
	<ul style="list-style-type: none"> <li>Check for signs of damage to the spring source or spring box, and repair</li> </ul>
	<ul style="list-style-type: none"> <li>Check for signs of animals and people walking through the spring source (and build fence if needed)</li> </ul>
Monthly	<ul style="list-style-type: none"> <li>For capped springs check that the spring source is protected (i.e. concrete cap and fenced from people and animals), and cleaned</li> </ul>
	<ul style="list-style-type: none"> <li>For spring boxes clean out (this might be a quarterly task, depending on the water quality)</li> </ul>
	<ul style="list-style-type: none"> <li>Check spring outlet pipe and connections for breaks and leaks</li> </ul>
	<ul style="list-style-type: none"> <li>Check for good drainage with no water ponding around the spring head</li> </ul>
	<ul style="list-style-type: none"> <li>Check that the spring water quantity/flow is enough to meet the school demand (e.g. with a bucket and watch), all year</li> </ul>
Annually	<ul style="list-style-type: none"> <li>Check water quality (external support)</li> </ul>

## Surface Water Facilities

Frequency	Maintenance task
Daily	<ul style="list-style-type: none"> <li>If the water is used for drinking, temporarily disconnect the water intake from storage tank when the surface water is very dirty, and leave disconnected until the water clears</li> </ul>
Weekly	<ul style="list-style-type: none"> <li>Remove any rubbish that may have accumulated around the intake pipe/canal and screens</li> </ul>
	<ul style="list-style-type: none"> <li>Check pipeline and connections for breaks and leaks</li> </ul>
	<ul style="list-style-type: none"> <li>Check the intake pipe/canal and screens for damage</li> </ul>
Quarterly	<ul style="list-style-type: none"> <li>Inspect catchment area for activities that are likely to contaminate the water source, and report any immediately to the School WASH Committee</li> </ul>
Annually	<ul style="list-style-type: none"> <li>If the supply takes water from a dam, clean vegetation and sediment from the dam, flush out the intake, and check that the intake screen is in good condition</li> </ul>
	<ul style="list-style-type: none"> <li>Check water quality (external support)</li> </ul>

## Rainwater Collection

Frequency	Maintenance task
Weekly	<ul style="list-style-type: none"> <li>• Drain first flush diverter after every rainfall event, if this does not drain automatically</li> </ul>
	<ul style="list-style-type: none"> <li>• Remove any rubbish from around the tank</li> </ul>
	<ul style="list-style-type: none"> <li>• Check for ponding of water around the tank's tap, and improve drainage if needed</li> </ul>
Monthly	<ul style="list-style-type: none"> <li>• Check that the tank cover/lid is in place, and that the inlet and overflow openings are screened to prevent insects and small animals entering the tank</li> </ul>
	<ul style="list-style-type: none"> <li>• Check guttering, connections, tap and tank for breaks and leaks</li> </ul>
	<ul style="list-style-type: none"> <li>• Check that the tank is secured from vandalism (i.e. fenced from people and animals)</li> </ul>
	<ul style="list-style-type: none"> <li>• Check the inside of the tank to see any rubbish or animals have got inside, clean if needed</li> </ul>
Quarterly	<ul style="list-style-type: none"> <li>• Clean the roof and guttering</li> </ul>
Annually	<ul style="list-style-type: none"> <li>• Safely clean and disinfect inside the tank</li> </ul>
	<ul style="list-style-type: none"> <li>• Check water quality (external support)</li> </ul>

## Pumps

Frequency	Maintenance task
Weekly	<ul style="list-style-type: none"> <li>• For petrol and diesel pumps - check the fuel level</li> </ul>
	<ul style="list-style-type: none"> <li>• Check pump drive-belt condition and tension</li> </ul>
	<ul style="list-style-type: none"> <li>• For solar powered pumps clean the dust and dirt off the solar panels</li> </ul>
Monthly	<ul style="list-style-type: none"> <li>• For petrol and diesel pumps - check inside pump-casing for debris</li> </ul>
	<ul style="list-style-type: none"> <li>• For petrol and diesel pumps - if oil is required, check oil level is good</li> </ul>
Quarterly	<ul style="list-style-type: none"> <li>• Check the electrical/solar pump electrical connections for corrosion and loose connections</li> </ul>
	<ul style="list-style-type: none"> <li>• Carry out oil change for petrol and diesel pumps</li> </ul>
Annually	<ul style="list-style-type: none"> <li>• For petrol and diesel pumps - Check fuel filters are clear, if not replace filter</li> </ul>

## Water Storage Tanks

Frequency	Maintenance task
Weekly	<ul style="list-style-type: none"> <li>• Check level of water in the tank</li> </ul>
	<ul style="list-style-type: none"> <li>• Remove any rubbish from around the tank</li> </ul>
	<ul style="list-style-type: none"> <li>• Check for ponding of water around the tank, and improve drainage if needed</li> </ul>
Monthly	<ul style="list-style-type: none"> <li>• Check that the tank cover/lid is in place, and that the inlet and overflow openings are screened to prevent insects and small animals entering the tank</li> </ul>
	<ul style="list-style-type: none"> <li>• Check that the tank is secured from vandalism (i.e. fenced from people and animals)</li> </ul>
	<ul style="list-style-type: none"> <li>• Check the inside of the tank to see any rubbish or animals have got inside, clean if needed</li> </ul>
Annually	<ul style="list-style-type: none"> <li>• Clean and disinfect inside the tank</li> </ul>
	<ul style="list-style-type: none"> <li>• Check the structure holding the tank (e.g. tank stand) is safe, and strengthen if needed</li> </ul>

## Hand wash or personal hygiene facilities

Frequency	Maintenance task
Daily/Weekly	<ul style="list-style-type: none"> <li>• Check that there is enough water and soap available for the number of users every day</li> </ul>
	<ul style="list-style-type: none"> <li>• Check that there is good drainage around the water access points (e.g. tippy taps, taps, showerheads) with no ponding water, and improve ground cover (e.g. concrete or gravel) and drainage if needed</li> </ul>
	<ul style="list-style-type: none"> <li>• Clean the facilities every week or daily if needed</li> </ul>
Monthly	<ul style="list-style-type: none"> <li>• Check that there is enough water storage to meet demand</li> </ul>
	<ul style="list-style-type: none"> <li>• Check water access points for breaks and leaks, and repair or replace if needed</li> </ul>
	<ul style="list-style-type: none"> <li>• Check that the personal hygiene facilities are safe and private</li> </ul>
Quarterly	<ul style="list-style-type: none"> <li>• Check there are enough water access points to meet the demand, and install more if needed</li> </ul>

## Drinking water and tap stand facilities

Frequency	Maintenance task
Daily/Weekly	<ul style="list-style-type: none"> <li>• Check that there is enough water available at the tap for the number of users every day (either stored in tank or direct access)</li> </ul>
	<ul style="list-style-type: none"> <li>• Check the taps and fittings are working OK and not leaking</li> </ul>
	<ul style="list-style-type: none"> <li>• Clean the area around the tap stand</li> </ul>
	<ul style="list-style-type: none"> <li>• Check that there is good drainage around the tap stand with no ponding water, and improve ground cover (e.g. concrete or gravel) and drainage if needed</li> </ul>
	<ul style="list-style-type: none"> <li>• Check that any water treatment is working</li> </ul>
	<ul style="list-style-type: none"> <li>• Check that drink bottles/cups are cleaned everyday with soap</li> </ul>
	<ul style="list-style-type: none"> <li>• Check that drinking water storage containers are cleaned every week</li> </ul>
Monthly	<ul style="list-style-type: none"> <li>• Scrub the concrete apron around the tap stand with hot soapy water</li> </ul>
Annually	<ul style="list-style-type: none"> <li>• Check water quality (external support)</li> </ul>



## EXAMPLE: Water Supply / Handwashing Facility Operation Plan

Action	Who is responsible?	When?	Resources needed
Clean surrounding area of hand washing facility			
Test whether taps are functioning and not leaking			
Check whether there is availability of soap			
Replace/clean towels used for hand drying			
Clean tap stands and the areas around any tanks			
Use first flush to flush-out water when it first rains			
Check that no leaked water from tank is collecting in puddles around tank			

**EXAMPLE:** Water Supply / Handwashing Facility Maintenance Plan

Action	Who is responsible?	When?	Resources needed
Check condition of handwashing facilities			
Cleaning of guttering systems			
Check the gutters for damages			
Cleaning of the filters and pipes			
Cleaning of the tank			
Check the taps are functioning well			
Fix any items that need to be repaired			

## Water Supply Common Problems/ Troubleshooting

Although regular checks are carried out, problems that can cause the rainwater harvesting systems to not properly function can occur. The following table lists these problems and possible solutions:

Problem	Probable cause	Possible solution
<b>Water does not enter the tank</b>	Blockage in down pipe	Remove blockage Clean or replace filter of the inlet pot
	Gutter in not installed at a gradient to allow water to flow into the tank	Check levels on gutter and reset levels if required
	Gutter sags	Add more brackets on the gutter
<b>No water in tank</b>	Leaky tap or tank	Check for leaks and repair Monitor usage
<b>Water does not last long after end of rains</b>	Storage volume is low compared to consumption	Regulate consumption by locking tap Provide additional storage Additional catchment area may be required
<b>Smelly water</b>	Organic matter in the tank decomposing	Drain tank and clean thoroughly
<b>Damaged tap of valve</b>	Poor material of tap Wrong method of operation	Replace the tap with higher quality materials
<b>Low flow rate from tap</b>	Possible leakage affecting flow; too many taps being used at once	Check for leaks in pipes and at taps, and repair/replace  If the water is a piped system and has low flow problems get external help to redesign the system to meet the needs of all users

## Essential tools required

In order to operate and maintain water supply and handwashing facilities a few items and tools are needed. The following is a list of essential tools:

- Ladder: can be self-made or shop bought to check blockages in down pipes, gutters, roof
- Gutters: it is good to have always a few pieces in stock to be able to replace them if needed
- Pipe Wrenches: a 24" for loosening/tightening 1" to 2" pipes, and a 36" for loosening/tightening 3" to 4" pipes
- Screwdriver set: adjusting screws
- Shovel: cleaning the catchment surface, tanks and man-holes
- Die stock: pipe threading tape



The background features a series of horizontal, wavy bands in various shades of blue, ranging from light turquoise to deep navy. A large, white dotted circle is centered on the page, overlapping the wavy bands. Inside this circle, the word "Sanitation" is written in a bold, blue, sans-serif font.

# Sanitation

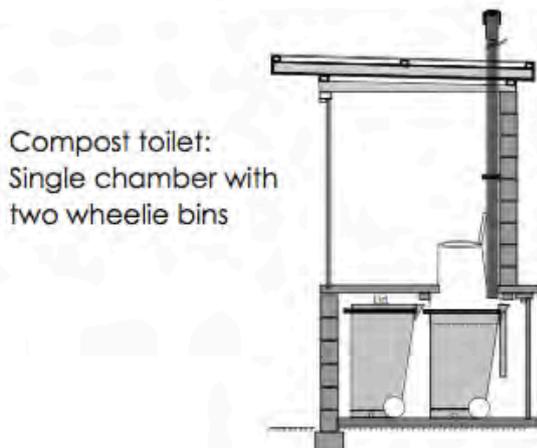
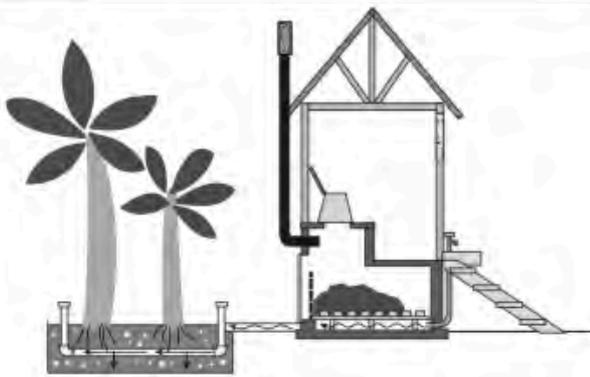
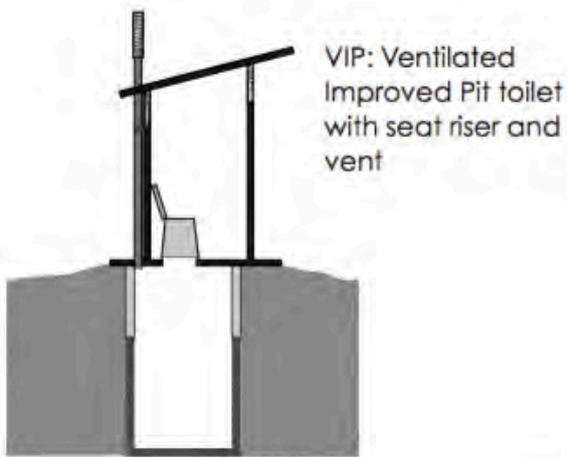
# Summary of WASH in Schools National Standards – Sanitation

	Fiji	Solomon Islands	Kiribati	PNG
<b>SANITATION</b>				
Quantity, toilet ratios	Girls – 1:20 Boys – 1:33, 1:50 (urinal)	Day schools: 1:30 (girls), 1:40 (boys), Boarding schools: 1:25 (girls), 1:35 (boys), 1:50 (boys' urinals)	Girls – 1:40 Boys 1:60	Day schools: Girls – 1:25 Boys – 1:40, 1:40 (urinal) Same ratio for boarding schools Gender separated
	Staff 1:20 separate male and female	Staff 1:20 separate male and female	Staff 1:25	Staff 1:20 separate male and female
Disabled access	1 toilet wheelchair access  Special needs schools toilet/ student ratio 1:15, 1 wheelchair access cubicle per sex	1 toilet wheelchair access per block	Disability access required	Toilet building must be inclusive and must have one toilet cubicle suitable for people living with special needs. It should be accessible with ramp, guard/hand rail and must also be suitable to use for menstrual hygiene needs.
Quality	Comply with national building codes  Min. VIP latrine	Min. VIP latrine	Min. VIP latrine. Schools with piped water are to provide flushing or water seal toilets	Min VIP latrine with a cleanable slab, incremental improvement made based on student population growth. Pit must be located at-least 30 meters away from drinking water source
Construction	Adequate light and ventilation, privacy, lockable doors, appropriate location, mandatory heights of toilets and washbasins	Adequate light and ventilation, privacy, lockable doors, appropriate location, outside screening walls, separation of staff and student blocks	Well-lit and ventilated, clean and maintained, doors open outwards, appropriate location.	Adequate light and ventilation, privacy, lockable doors, appropriate location, mandatory heights of toilets and washbasins. Toilets must be located next to or within 30m from classrooms. The path to the toilet should be gentle and not slippery, clear and safe (non-hazardous) and adequately lit.

# Toilet Options

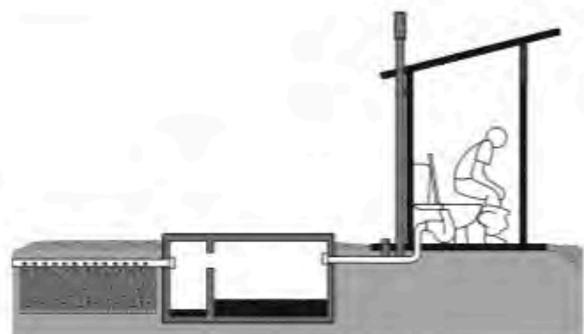
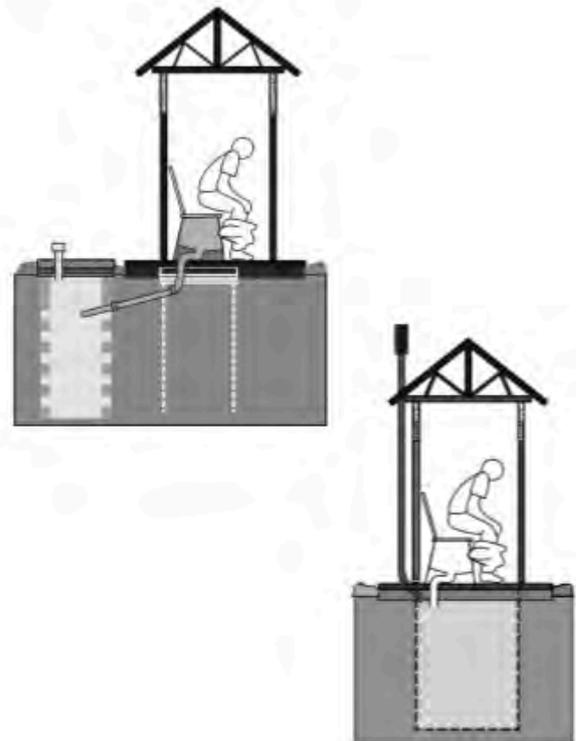
Schools can have different types of toilets – from pit toilets, to ablution blocks with flush toilets. Rural schools usually have pit toilets, composting toilets, or pour flush toilets with a septic.

## Dry toilet options



## Wet toilet options

### Pour flush toilets



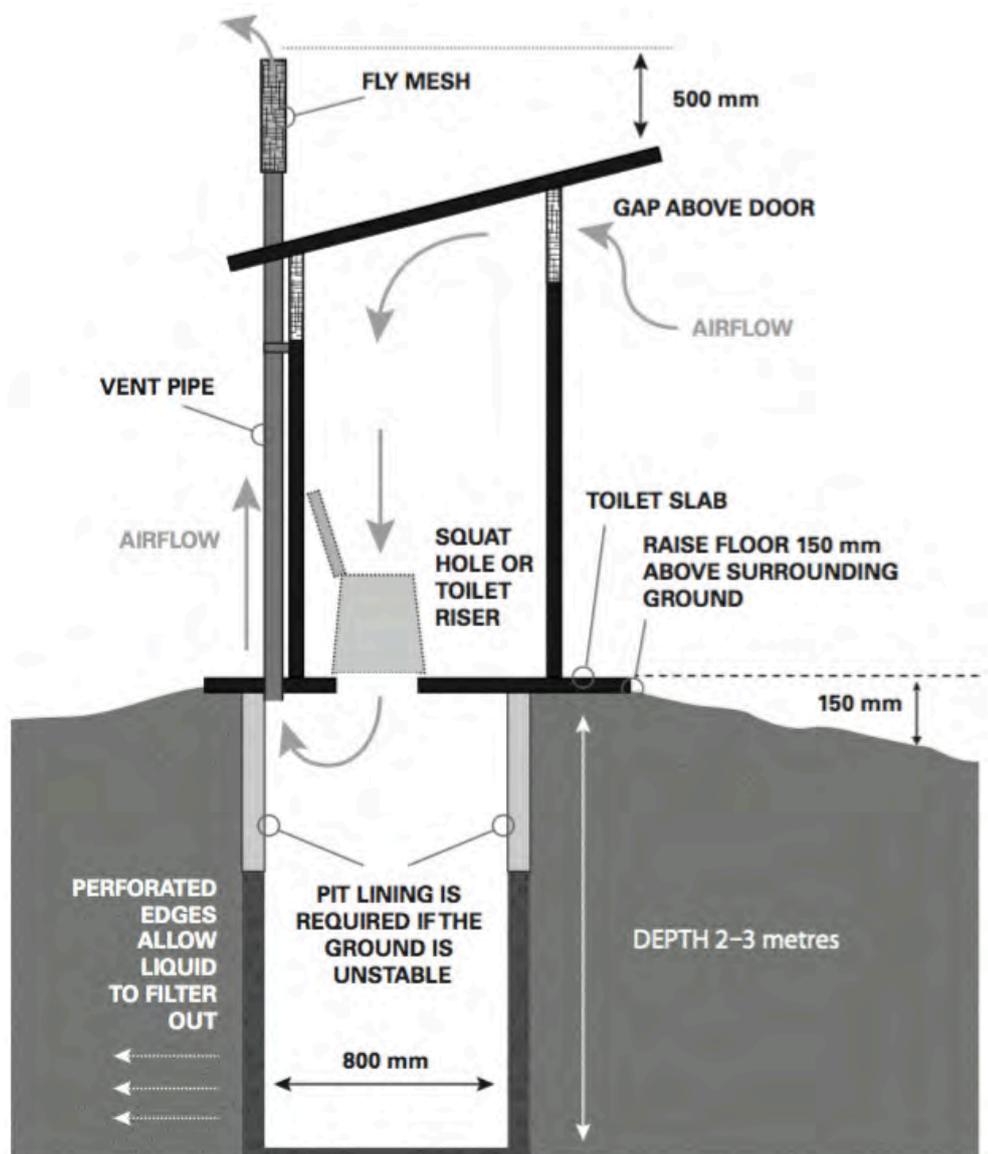
# Ventilated Improved Pit Toilet

A VIP toilet consists of three major parts:

- 1 A hole in the ground – the **pit** in which urine and faeces are collected;
- 2 The **latrine slab** with either a seat riser or a squat-hole – the cover of the pit on which the user stands when using the latrine;
- 3 The **super structure** or shelter which is also known as an outhouse that provides privacy and protection from sun and rain.

A VIP toilet is a pit toilet that has been fitted with a vent pipe and a fly screen. When built and used properly these toilets do not smell as smelly gas from the pit rises up through the vent pipe.

Inside a VIP latrine it is quite dark. If the toilet seat or squat hole is always covered, then the flies that are in the pit will be attracted to the light at the top of the vent pipe, where they are trapped against the fly screen and will eventually fall back into the pit and die. In this way they cannot leave the latrine and carry with them faeces that contain germs that can transmit diseases to people.



The illustration shows all parts of a VIP latrine and how it works.

## Septic Pour Flush Toilets

A pour flush toilet is like a regular flush toilet except that instead of the water coming from a cistern above, it is poured in by the user, using a bucket. How does it work? The toilet pan is 'flushed' by quickly pouring (or, better, throwing) a few litres of water into the pan after use. The amount of water used varies between one and four litres depending mainly on the pan and design of the toilet. Pans requiring a small amount of water for flushing have the added advantage of reducing the risk of groundwater pollution. The flushing water does not have to be clean and could include laundry, bathing or other water pre-used from around the house or school.

Water and faeces move with the water into a 2 to 3 metre deep soakage pit in the ground, either directly below the toilet or offset to the side and connected by a pipe. The liquid soaks away into the surrounding soil, whilst the faeces slowly fills the hole over 2 years or so. When almost full, a new pit is dug, and the old pit filled with soil.

## Using Toilets

Toilets in schools are often built in blocks of more than one. They should be separate for girls, boys and teachers. As with all other buildings on the school compound, the toilets need to be used carefully so they can last for a long time. It is also very important for school toilets to be kept clean.

The toilet riser/squat hole must be closed with a lid or cover. Using the toilet means either sitting on the toilet riser or standing on the foot-steps of the squat. When leaving the toilet nothing should be left on the latrine floor – if it does then the student or teacher should immediately clear the floor using water and a brush. For the urinals for girls and boys it is important to keep them clean and not leave any rubbish behind that could eventually block the urinal drain.

Toilet cubicle doors and toilet building entry doors need to be closed carefully not to damage them. It is good practice for older children to assist younger children to use the toilets by showing them how to use them properly, especially at the beginning of each new school year.

## Toilet Operation Plan

To keep the toilets usable for a long time, they need to be checked and cleaned. The toilet building and floor need to be regularly cleaned with water and disinfectant to remove any faeces and urine. Appropriate personal cleaning materials should be available for the latrine users at all times, such as toilet paper. All dirt should be brushed into the squat hole or swept outside if the toilet is pour or button flush. Before leaving the latrine the toilet riser/squat hole cover needs to be put back on the hole.

No cleaning materials and no rubbish should be thrown into the pit. Only toilet paper is thrown into the pit. Used sanitary pads should not be thrown into the pit but be wrapped and disposed of in a special bin. Using the pit as a rubbish bin will fill it up too quickly and can block the pipes if the pit is emptied through a pump.

## Toilets Maintenance Plan

To keep the toilets usable for a long time the structures need to be maintained. As a first step all parts of the latrines need to be checked regularly. Depending on what you find during the checks some parts might need repair or replacement. Through regular inspections it will be clear which parts need attention.

The Toilets Maintenance checklists below will help to know what to check, by whom and when. It also good to plan what repairs can be done by the caretaker and for which work external help is needed.

### VIP and Raised VIP Toilet Facilities

Frequency	Maintenance task
Daily/Weekly	<ul style="list-style-type: none"> <li>• Check daily that the toilet area is cleaned (i.e. floor, seat/pedestal)</li> </ul>
	<ul style="list-style-type: none"> <li>• Check daily that the toilet is covered with a lid when not in use</li> </ul>
	<ul style="list-style-type: none"> <li>• Check that no chemicals, deodorisers, plastics or anything inorganic are going into the toilet</li> </ul>
	<ul style="list-style-type: none"> <li>• Check that there is a menstrual waste bucket/disposal bag with a lid, and its contents are burned weekly</li> </ul>
	<ul style="list-style-type: none"> <li>• Check that no wastewater is leaking or ponding around the toilet</li> </ul>
Monthly	<ul style="list-style-type: none"> <li>• If even when cleaned the toilet smells, improve ventilation</li> </ul>
	<ul style="list-style-type: none"> <li>• Check that the seat/pedestal and lid are not broken or cracked</li> </ul>
	<ul style="list-style-type: none"> <li>• Check the pit, if full, start using a new pit. Remove and relocate the toilet structure. Cover the pit with at least 200mm of soil and fence off from people and animals</li> </ul>
	<ul style="list-style-type: none"> <li>• Keep the paths to the toilets clear of vegetation and rubbish</li> </ul>
Annually	<ul style="list-style-type: none"> <li>• Check that the toilet is safe and private</li> </ul>

## Dry/Compost Toilet Facilities

Frequency	Maintenance task
Daily/Weekly	<ul style="list-style-type: none"> <li>Apply organic matter (i.e. ash, leaves, grass) to the toilet after each use, especially after urination</li> </ul>
	<ul style="list-style-type: none"> <li>Check that no chemicals, deodorisers, plastics or anything inorganic are going into the toilet</li> </ul>
	<ul style="list-style-type: none"> <li>Check daily that the toilet is covered with a lid when not in use</li> </ul>
	<ul style="list-style-type: none"> <li>Check daily that the toilet area is cleaned (i.e. floor, seat/pedestal)</li> </ul>
	<ul style="list-style-type: none"> <li>Check that there is a menstrual waste bucket/disposal bag with a lid, and its contents is burned weekly</li> </ul>
	<ul style="list-style-type: none"> <li>Check that no wastewater is leaking or ponding around the toilet</li> </ul>
	<ul style="list-style-type: none"> <li>When the urine diversion chamber is full empty its contents to ground at a fenced off disposal site using personal protection gear (i.e. facemask, overalls and gloves)</li> </ul>
Monthly	<ul style="list-style-type: none"> <li>If even when cleaned the toilet smells, improve ventilation</li> </ul>
	<ul style="list-style-type: none"> <li>Check that the seat/pedestal and lid are not broken or cracked</li> </ul>
	<ul style="list-style-type: none"> <li>Check to see if the compost chamber/storage container is full.</li> <li>If full: Dig out the compost chamber using personal protection gear (i.e. facemask, overalls and gloves) and stockpile the compost in an isolated, sunny, fenced location for a period of 1 year</li> <li>If full: Replace the compost storage container with a secondary container and set aside the full container for a period of 1 year</li> </ul>
	<ul style="list-style-type: none"> <li>Keep the paths to the toilets clear of vegetation and rubbish</li> </ul>
Annually	<ul style="list-style-type: none"> <li>Check that the toilet is safe and private</li> </ul>

## Pour Flush Toilet Facilities

Frequency	Maintenance task
Daily/Weekly	<ul style="list-style-type: none"> <li>• Check daily that there is enough water available for flushing for the number of users every day</li> </ul>
	<ul style="list-style-type: none"> <li>• Check daily that the toilet area is cleaned (i.e. floor, seat/pedestal)</li> </ul>
	<ul style="list-style-type: none"> <li>• Check daily that the toilet is covered with a lid when not in use</li> </ul>
	<ul style="list-style-type: none"> <li>• Check that no chemicals, deodorisers, plastics or anything inorganic are going into the toilet</li> </ul>
	<ul style="list-style-type: none"> <li>• Check that there is a menstrual waste bucket/disposal bag with a lid, and its contents is burned weekly</li> </ul>
	<ul style="list-style-type: none"> <li>• Check that no wastewater is leaking or ponding around the toilet</li> </ul>
Monthly	<ul style="list-style-type: none"> <li>• If even when cleaned the toilet smells, improve ventilation</li> </ul>
	<ul style="list-style-type: none"> <li>• Check that the seat/pedestal and lid are not broken or cracked</li> </ul>
	<ul style="list-style-type: none"> <li>• Check the pit, if full remove and relocate the toilet structure, or if a suction device is available, empty and dispose of safely. Cover the pit with soil and fence off from people and animals</li> </ul>
	<ul style="list-style-type: none"> <li>• Check the pit, if full remove the waste with a suction truck if available or safely by hand</li> </ul>
	<ul style="list-style-type: none"> <li>• Keep the paths to the toilets clear of vegetation and rubbish</li> </ul>
Annually	<ul style="list-style-type: none"> <li>• Check that the toilet is safe and private</li> </ul>

## Ablution Block with Flush and Septic Tank Facilities

Frequency	Maintenance task
Daily/Weekly	<ul style="list-style-type: none"> <li>Check daily that there is enough water available for flushing for the number of users every day</li> </ul>
	<ul style="list-style-type: none"> <li>Check daily that the toilet area is cleaned (i.e. floor, seat/pedestal)</li> </ul>
	<ul style="list-style-type: none"> <li>Check daily that the toilet is covered with a lid when not in use</li> </ul>
	<ul style="list-style-type: none"> <li>Check that no chemicals, deodorisers, plastics or anything inorganic are going into the toilet</li> </ul>
	<ul style="list-style-type: none"> <li>Check that there is a menstrual waste bucket/disposal bag with a lid, and its contents is burned weekly</li> </ul>
	<ul style="list-style-type: none"> <li>Check that the cistern is not leaking and is working</li> </ul>
	<ul style="list-style-type: none"> <li>Check that no wastewater is leaking or ponding around the toilet or septic tank area</li> </ul>
Monthly	<ul style="list-style-type: none"> <li>If even when cleaned the toilet smells, improve ventilation</li> </ul>
	<ul style="list-style-type: none"> <li>Check that the seat/pedestal and lid are not broken or cracked</li> </ul>
	<ul style="list-style-type: none"> <li>Check inside the septic tank via a manhole. If full remove its contents by digging using personal protection gear (i.e. facemask, overalls and gloves) or a suction truck. Stockpile the septic tank waste in an isolated, sunny, securely fenced location for a period of 1 year</li> </ul>
	<ul style="list-style-type: none"> <li>Keep the paths to the toilets clear of vegetation and rubbish</li> </ul>
Annually	<ul style="list-style-type: none"> <li>Check that the toilet is safe and private</li> </ul>



**EXAMPLE:****Toilets Operation Plan**

Action	Who is responsible?	When?	Resources needed
Clean all toilets, floors and urinals			
Empty/ clean sanitary waste bins			
Check whether there is enough toilet paper available			
Check that all doors locks are working, and that doors are safe			
Check that soap is available for washing hands			

**EXAMPLE:****VIP Toilets Maintenance Plan**

Action	Who is responsible?	When?	Resources needed
Repair of doors if they do not lock			
If vent pipe is blocked pour water down through it to remove spider webs			
Check the condition of the shelter for cracks on floor and walls			
Check the condition of the shelters roof and gutters			
Check that the vent pipe and cap are in good condition			
Fix any items that need repair			
Check whether the pit/tank is full			

# Toilets: Common Problems/Troubleshooting

The following table lists common problems and possible solutions:

Problem	Probable cause	Possible solution
Dirty water stagnating on the floor	Floor constructed not sloping correctly	Add another floor layer, consult with construction expert for assistance.
Foul odours in the toilets at certain times of the day (usually early morning)	No air circulation if outside air temperature is colder than the air in the pit	Put all toilet covers on at the end of each school day
	Pit nearly full	Pit needs to be emptied

## Essential Tools Required

In order to operate and maintain latrines facilities a few items and tools are needed. Some might be already in the school to keep the class rooms and offices clean and carry out repairs. Others might need to be purchased specifically for WASH operation and maintenance:

- **Broom:** shop bought to clean all surfaces, especially latrine floors and surrounding area.
- **Bucket:** to fetch water for wet cleaning with brushes and brooms.
- **Ladder:** can be self-made or shop bought to check blockages in the vent pipe, down pipes, gutters, roofs and so on.
- **Hinges:** to repair doors.
- **Vent cap:** might need to be replaced when broken.
- **Gutters:** it is good to have always a few pieces in stock to be able to replace them if needed.



# Menstrual Hygiene Management

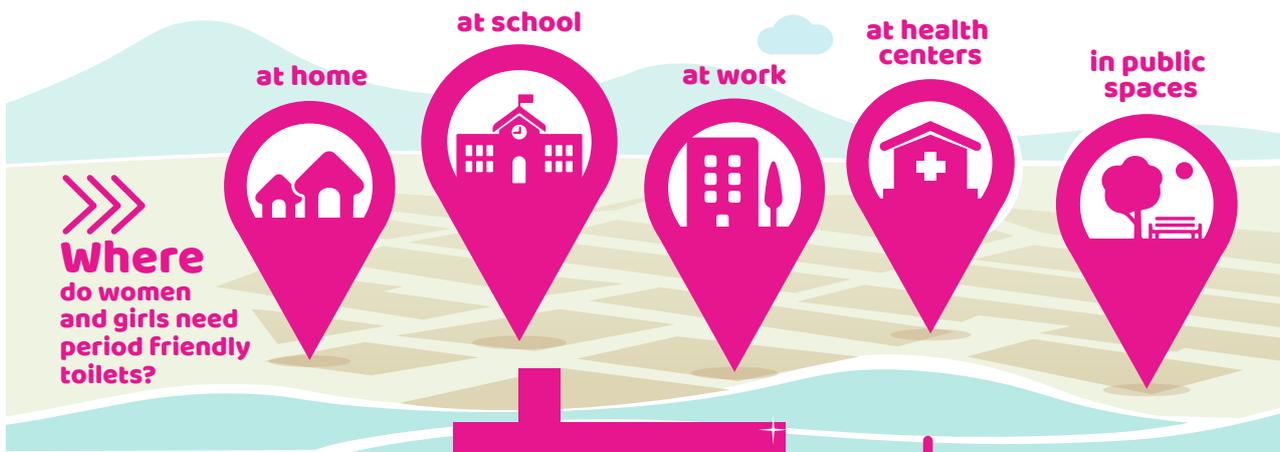
# Period Friendly Toilets



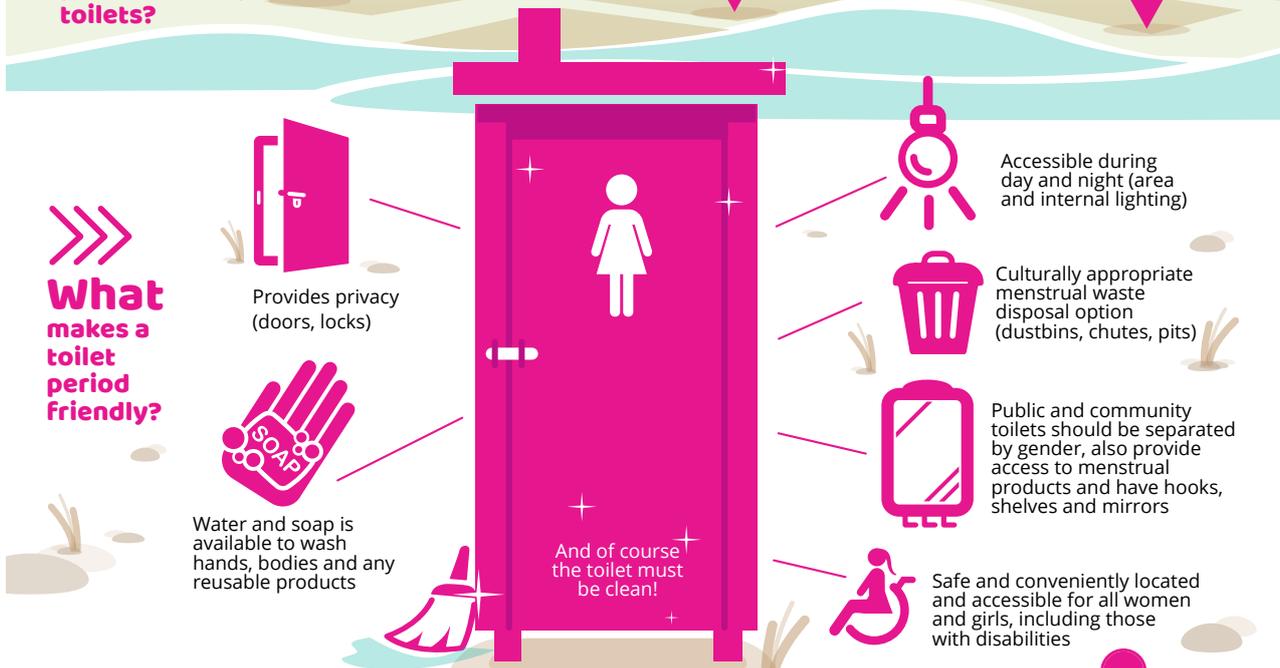
**MENSTRUAL HYGIENE DAY**

## WHY PERIOD FRIENDLY TOILETS MATTER

On any given day, approximately 300 million women and girls menstruate. In order to manage their menstruation safely, hygienically, with confidence and with dignity, they need a private space to attend to their menstruation-related needs, such as washing themselves and changing materials. For most women and girls, this will be a toilet.



Where do women and girls need period friendly toilets?



What makes a toilet period friendly?

How do women and girls benefit from period friendly toilets?

**Increased overall well-being and reduced psychological stress**

Having access to period friendly toilets at all times makes menstruation a less stressful experience

**Increased ability to carry on with daily educational, income-earning and social activities**

Period friendly toilets are critical to ensure that girls don't miss school and women can go to work during their periods

**Increased safety**

With period friendly toilets, women and girls no longer need to put themselves at risk of violence when trying to dispose of their menstrual waste in secluded places or under the cover of darkness



# Collection and disposal of menstrual waste products

Various options are available for waste collection for used sanitary pads. The school should use something simple and affordable that meets these criteria:

- Has a lid and can be put in a private location
- Is easy to carry if it has to be transferred to the waste disposal site
- It is easy to wash and keep clean
- It is affordable and available in local shops



Methods sometimes used for the disposal of used sanitary pads, cloths and other menstrual items include:

- Burying
- Incineration or burning
- Disposal into a regular waste management collection and disposal system
- Composting (for biodegradable sanitary materials)



None of the current end disposal options are perfect, and the choice for a school will depend on the context. When there is no convenient established method for the disposal of sanitary products, girls and women often dispose of their pads or cloths into latrines. Potential problems with this method of disposal can be:

- If the latrine is a pour flush, the pads can easily block the flushing system
- Pit latrines can fill up more quickly and pads can block the tanker suction pipes when emptying pits
- If the pad is not biodegradable it will slow the composting process in composting toilets



Open burning and incomplete combustion of waste can result in toxic releases both to air and groundwater. Controlled incineration (burning) creates air pollution, especially if a school is using a low-cost incinerator, but makes less pollution than open burning. For small volumes, temporary situations, or in areas where there is sufficient space (such as outside of high-density areas), burning or incineration may still be the best option.

**Design considerations for incinerators:**

- Easy to operate with minimum amount of fuel
- Distance between the incinerator and the latrine/changing room is as short as possible
- Can reach a high enough temperature to burn the materials effectively
- In a safe location and does not cause a risk to small children





# Accessibility

# Comprehensive Accessibility

It is important that schools think about improving comprehensive accessibility in water, sanitation and hygiene services. Children with disabilities, or parents/family members with disabilities most likely face barriers in attending or visiting the school. Removing 'disabling' barriers and ensuring comprehensive access plays a significant role in creating opportunities for people with a disability to participate. Impairments can become less 'disabling' if society is accessible and barriers to inclusion are removed.

Barriers can be grouped into four categories:

## Physical or environmental barriers

buildings, schools, clinics, water pumps, transport, roads, paths etc.

## Communication barriers

written and spoken information including media, flyers, internet, community meetings etc.

## Policy barriers

including both legislation that discriminates against people with a disability, and/or an absence of legislation that might otherwise provide an enabling framework. Departmental and organisational policies can also be addressed here.

## Attitudinal barriers

including negative stereotyping of people with a disability, social stigma and other forms of overt discrimination. It is not uncommon that disability is associated with cultural beliefs about sin, evil and witchcraft. People with a disability often report that attitudes are the most disabling barriers of all.

Comprehensive Accessibility are the actions taken to address all these barriers. The school WASH Committee is usually focused on the physical or environmental barriers to accessibility.

# Universal Design

Universal design is when products, buildings and environments are designed and built to be useable by all people, to the greatest extent possible, without the need for special adaptation or specialised design. For toilets we think about the following design elements to make the toilet easier to use for everyone:

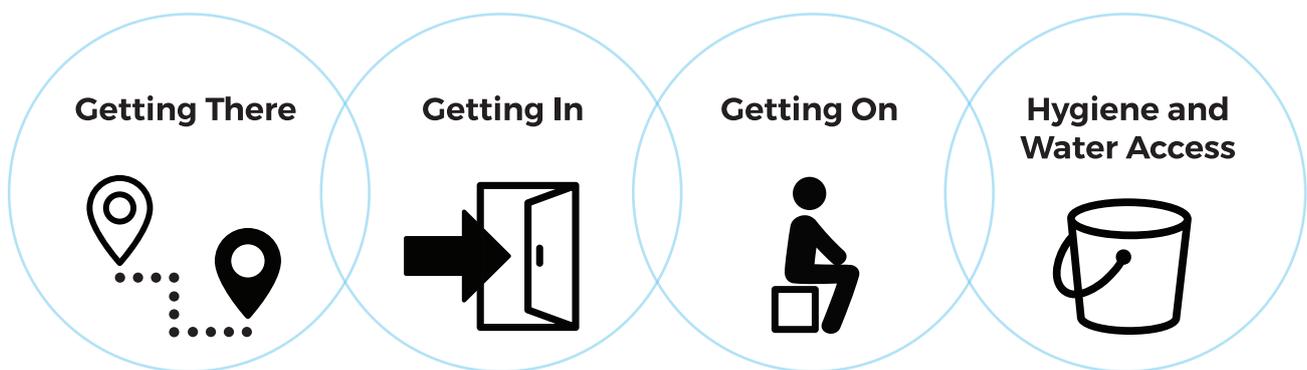
- Size of door (height, width) – toilet entrance
- Size of toilet
- Type of toilet
- Height of mirror
- Height of washing basin and location of soap and hanging hooks for towels
- Space inside the toilet/bathroom
- Handrails/walking bar
- Light inside the toilet/bathroom
- Distance and height of cleaning facilities
- Door handles and locks that can be reached easily
- Ramps and a smooth path to the toilet/bathroom entrance
- Smooth floor inside the toilet, that isn't slippery



# WASH Accessibility & Safety Check

As a starting point for planning to improve accessible design of school toilets the WASH Committee should conduct a WASH Accessibility & Safety Check. The form for this is adapted from material developed by WaterAid and Christian Blind Mission, and is provided in the Resources section at the end of this manual.

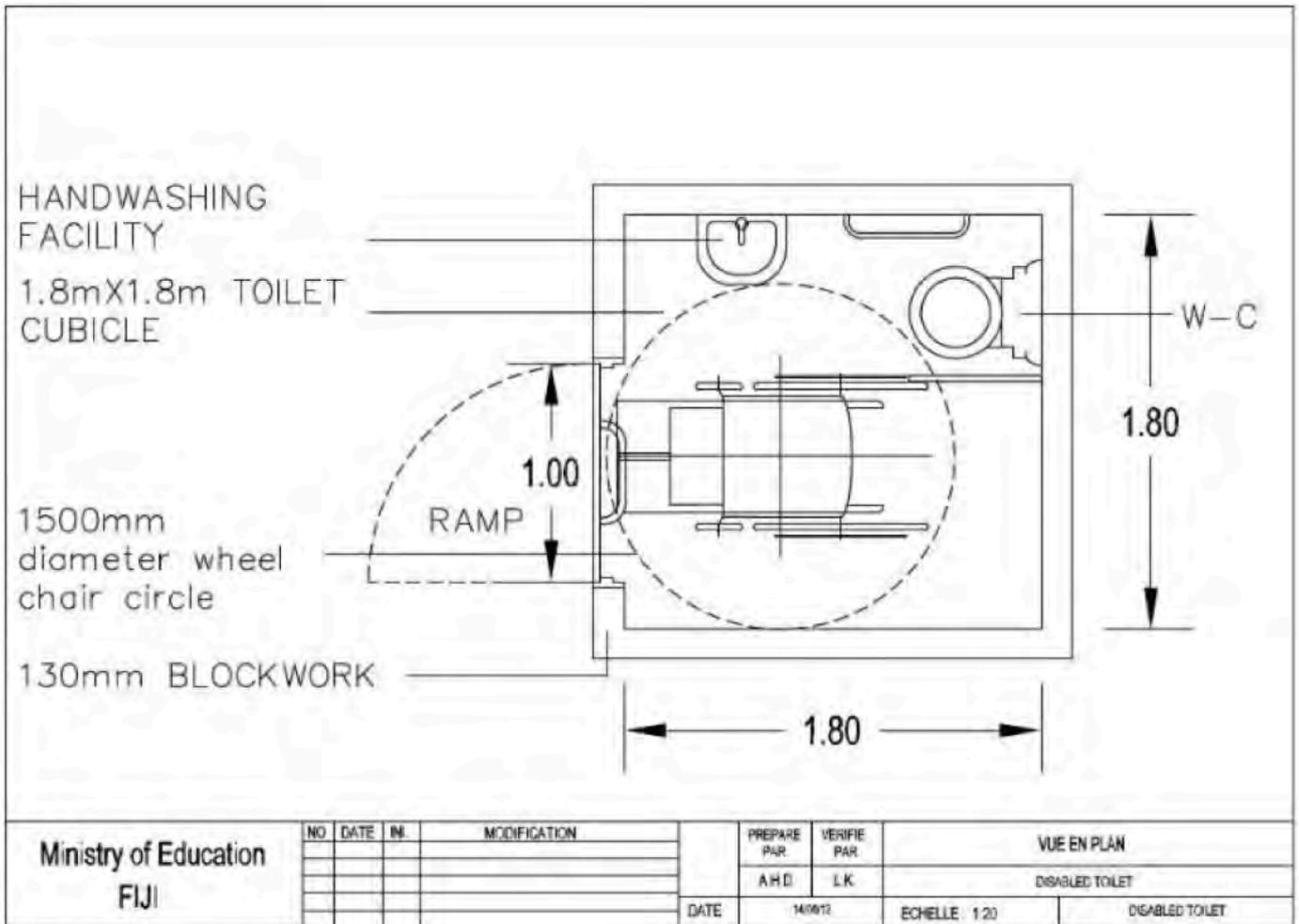
It can be helpful to involve community members (parents, grandparents, other relatives) who are living with a disability in this check, or involve a local disability organisation. There are four key aspects of toilet use to think about:



# National designs for accessible toilets in schools

Fiji, Kiribati, Papua New Guinea, Solomon Islands and Vanuatu governments are all working on designs for accessible toilets for schools. So, each school should work with their government education authorities on the designs of new toilets. An example from the Fijian Ministry of Education is pictured below. Note the specification on the different elements – like size of the cubicle, width of the door, support bars, etc

Not every school has the budget to immediately build universally accessible toilets. So, while each school works with the government education authorities to get support for better permanent facilities there are important simple things to improve accessibility that can be done immediately. These things can be identified during the WASH Accessibility & Safety Check.







# Useful Resources

# WASH Accessibility & Safety Checklist

Use the attached checklist to remind you of the kind of features to look for, ignore any that are not relevant, and add things that are missing.

## 1 Getting there:

CHECKLIST	COMMENTS
Distance from house to latrine or from door of building to latrine	
What is the path/ access route made of?	
Is the path wide enough for all disabled users (recommended min width 90cm)?	
Is the path level and firm, with nothing to trip up?	
Is the path surface slippery when either dry or wet?	
Are there obstacles that block the path, or make it easy to trip especially for visually impaired people (up to 2m above floor level)?	
Is the path clear of branches of trees and bushes?	





# 3

## Safety of use

CHECKLIST	COMMENTS
<p><b>Feeling safe when using the latrine:</b></p> <ul style="list-style-type: none"> <li>• Do all groups of people feel safe when using the latrine? Particularly ask adolescent girls, women and children of different ages.</li> <li>• Are there any particular times of day or night when adolescent girls, women or children feel less safe?</li> <li>• Is there any way that men or boys can easily see inside the women / girls' latrines?</li> <li>• How far is the women's latrine located from the men's latrine? Do men and boys hang around outside the women's latrine?</li> </ul>	
<p><b>Management and maintenance:</b></p> <ul style="list-style-type: none"> <li>• If there is a caretaker or cleaner do they make adolescent girls, women and children feel safe when they use the latrine by the way they behave?</li> <li>• Improvements: How would the users suggest the facility design or management could be improved to make it feel safer to use?</li> </ul>	

### Suggested changes:

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## 4 Inside the toilet

Draw a plan on a separate page to show dimensions and layout viewed from above.

CHECKLIST	COMMENTS
<p><b>Space inside:</b></p> <ul style="list-style-type: none"> <li>• Total internal dimensions (width, length)</li> <li>• Distance from door to front of toilet pan/ hole</li> <li>• Width &amp; height of toilet pan</li> <li>• Distance on each side of toilet pan to each side wall</li> <li>• Does the layout of the toilet allow space for a wheelchair/ crutch user or a user and helper?</li> </ul>	
<p><b>Floor:</b></p> <p>What is it made of? Is it even, or uneven, firm or unstable, slippery or non-slip? Does it appear to be easy to clean?</p>	
<p><b>Light:</b></p> <p>When the door is closed is there enough light to see the toilet hole and footplates?</p>	
<p><b>Windows and roof:</b></p> <p>Do these provide adequate privacy for women and girls using the latrine? Can anyone see inside when standing on neighbouring roofs?</p>	

### Suggested changes:

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# Water and Sanitation O&M Monthly Planner

## Toilet & Water Facilities O&M Check

Please initial in the box when task completed

MONTH: _____	WEEK ONE					WEEK TWO					WEEK THREE					WEEK FOUR				
	MON	TUE	WED	THU	FRI	MON	TUE	WED	THU	FRI	MON	TUE	WED	THU	FRI	MON	TUE	WED	THU	FRI
<b>DAILY TASKS</b>																				
Clean all toilets																				
Clean all floors																				
Empty waste bins																				
Check toilet paper																				
Check enough soap																				
Clean towel for drying hands																				
Check water available																				
<b>WEEKLY TASKS</b>																				
Check all doors are lockable																				
Check floor/wall																				
Check vent pipe and cap																				
Check roof and gutters																				
Check if pit/tank is full																				
Test taps are working well																				
Check no puddles at tanks																				
<b>MONTHLY TASKS</b>																				
Clean guttering system																				
Clean filters and pipes																				
Make any needed repairs																				
Annual cleaning of tanks																				
<b>COMMENTS</b>																				

# Toilet & Water Facilities O&M Check

MONTH: \_\_\_\_\_

	WEEK ONE					WEEK TWO				
DAILY TASKS	MON	TUE	WED	THU	FRI	MON	TUE	WED	THU	FRI
Clean all toilets										
Clean all floors										
Empty waste bins										
Check toilet paper										
Check enough soap										
Clean towel for drying hands										
Check water available										

	WEEK ONE		WEEK TWO	
WEEKLY TASKS				
Check all doors are lockable				
Check floor/wall				
Check vent pipe and cap				
Check roof and gutters				
Check if pit/tank is full				
Test taps are working well				
Check no puddles at tanks				

	COMMENTS	
MONTHLY TASKS		
Clean guttering system		
Clean filters and pipes		
Make any needed repairs		
Annual cleaning of tanks		

*Please initial in the box when task completed*

WEEK THREE				
MON	TUE	WED	THU	FRI

WEEK FOUR				
MON	TUE	WED	THU	FRI

WEEK THREE	

WEEK FOUR	

