

HOUSEHOLD RAINWATER HARVESTING GUIDELINES



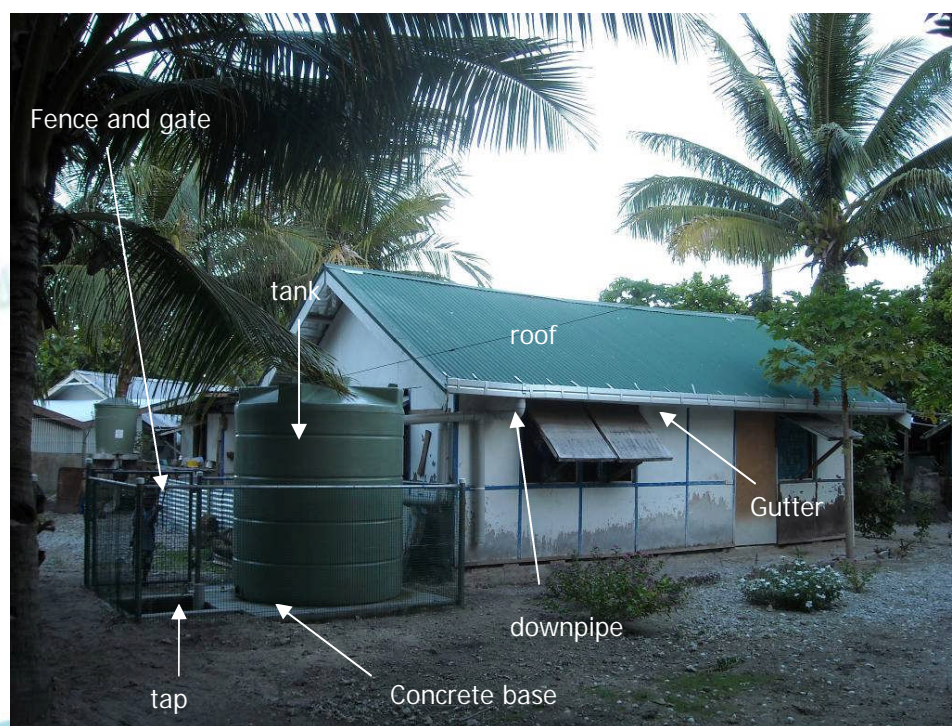
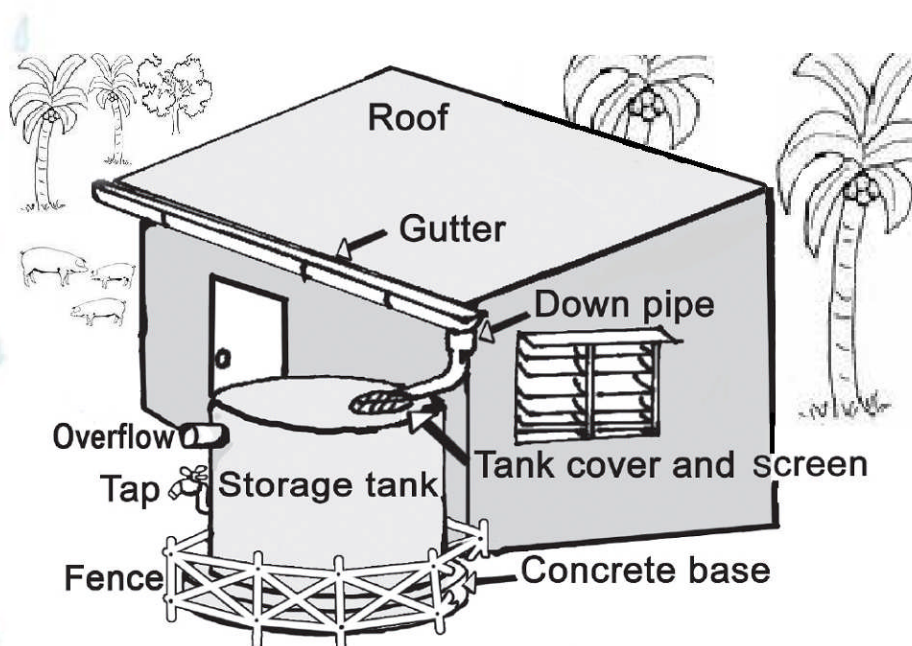
For
GOVERNMENT OF KIRIBATI

July 2011

HOUSEHOLD RAINWATER HARVESTING GUIDELINES

Water supply is often unreliable in Kiribati. Collecting and storing rainwater during the rainy season means that households and families can have a more reliable water supply during droughts. This is called '**Rainwater Harvesting**' and is used across the whole Pacific area to supply water.

Rainwater harvesting requires a metal roof, gutters and downpipes to collect the water, and a tank to store the water. The water tank should be as big as possible so that more water can be stored when it does rain. This is because rainfall is unreliable in Kiribati and droughts happen regularly.





Keeping rainwater safe for drinking:

Because of the contamination of well water in built up areas caused by people and animals and the increasing saltiness of well water near the lagoon or the ocean, collecting and storing rainwater usually provides better quality water than wells for your household and family. This means that rainwater should be used for cooking and drinking only. This also means that good quality rainwater should be rationed so that it lasts as long as possible during droughts. Well water can be used for other things like washing clothes.

A lot of people think that rainwater is always safe to drink. That is not always true. It all depends on how well looked after the rainwater capture and storing system is. Animals such as birds, rats, cats, geckos and cockroaches all have access to roofs and gutters and can even get into the tank if the openings are not screened or sealed. Animal droppings are a source of contamination, as well as leaves and dust on the roof and in the gutters.

When rain falls in Kiribati it is very clean and contains no bacteria and very little salt. Clean rainwater can pick up dirt and bacteria:

- As it flows over the roof top and the gutters and down the pipes
- While it is being stored in a tank
- When it is collected from the tank

If the rainwater harvesting system is well looked after the water is generally much cleaner than well water BUT if it is not looked after the rainwater in a tank can be contaminated and even worse quality than the well water.

To keep the water in your rainwater tank safe for drinking it is important to stop leaves, dirt, and bird droppings (which can collect on the roof of a house) from getting into tanks because these things are food for the bacteria which can grow in tanks and make people sick.

To do this gutters and roofs should be kept clean, particularly after long periods of dry weather. Roofs can be brushed off with a brush and a ladder, and gutters can be cleaned easily with a ladder. If you do this regularly it is easy to maintain a clean water tank. To make this job even easier it is a good idea to cut off branches which hang over the roofs which are used for collection.

It is also important to keep the tanks sealed because the bacteria can only grow when there is light getting in to the tank. Also, where the downpipe goes into the tank this should be sealed so that no small animals and mosquitoes can get in.

Even if the tank gets dirty the water can be used for drinking if it is boiled, also we can treat the water in the tank to make it safe by using bleach (see factsheet 1). It is also important to clean rainwater tanks. Rainwater tanks should be cleaned every year (see Factsheet 1).

It is a good idea to have a fence around your tank and your tap so that animals like pigs and dogs can not contaminate the water by licking the tap.

A decorative illustration of a light blue cloud with soft, pastel-colored outlines (pink, yellow, and green) at the top left. Numerous light blue raindrops of varying sizes are falling from the cloud, scattered across the upper half of the page.

Rainwater harvesting maintenance:

By maintaining the rainwater system, more clean rainwater will be captured and stored, this means that the water supply will be more reliable and last longer in droughts:

- Gutters should catch water from the whole roof and should be secure to the fascia board
- Gutters should be sloped so that water flows down the gutters towards the down pipes (it is easy to check this when it rains)
- Gutters should have no leaks and the connection to the downpipe should be sealed (it is easy to check this when it rains)
- Downpipes should have no leaks and they should be supported so they do not break or fall off
- Tanks and taps should have no leaks. Always fix a leaking tap!
- Tanks should have a flat base or they will break easily. Concrete is good for this.
- Tanks should have an overflow pipe so when it fills up the water can get out. It is a good idea to route this water to nearby wells as this will improve the quality of the well water.

Fact Sheet 1 – Cleaning tanks and disinfecting tanks with bleach

Be careful when using bleach. Read the safety instructions.

Cleaning tanks:

1. Clean tanks during the rainy season so that any lost water will be replaced quickly. Tanks should be cleaned once a year.
2. Drain the water in the tank to the level of the tap. If possible, transfer this water to a clean temporary tank. Make sure there is some water left in the tank.
3. Add 1 bottle of bleach to the water left in the tank.
4. Clean your feet and climb into the tank and scrub the bottom and sides of the tank with a brush.
5. Remove the dirty water and bleach with a bucket.
6. Refill the tank with water.

Disinfecting tanks:

You should disinfect your tank when one or more of the following things are happening:

- People are getting sick from drinking the water with sore stomachs and diarrhoea
- Animal or human waste, including bird droppings, have entered the tank.
- The water has been tested and there is a known bacterial contamination.

Steps:

1. Estimate volume of water in the tank.
2. Add 125ml (small cup) of bleach to every 1000 litres of water in the tank. This is based on using 'White King' bleach with 4% active chlorine.
3. Wait 24 hours before drinking the water.

White King bleach (which is available in most stores in Kiribati) comes in 750ml bottles. The table below shows how much bleach to add for the volume of water in the tank.

Volume of water in the tank	Amount of White King to add
1000 Litres	125 ml
2000 Litres	250 ml
3000 Litres	375 ml
4000 Litres	500 ml
5000 Litres	625 ml
6000 Litres	750 ml (1 bottle)

GWP CONSULTANTS
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WANIUA BWAAI AIKA KAKAWAKI IBUKIN KAIKOAN TE KARAU

8 THINGS TO REMEMBER ABOUT RAINWATER HARVESTING!

1. Kaitiaka taubukin te auti

1. *Keep roofs clean*



2. Kaitiaka te bwai ni kawawaa

2. *Keep gutters clean*



3. Onei bwai ni kawawaa aike raran

3. *Repair leaking gutters and provide a slope to the downpipe*



4. Onei taian bwaibi (downpipe) ake a tiki man te taubuki nakon te tangke ngkana a raran

4. *Repair leaking downpipes and make them secure*



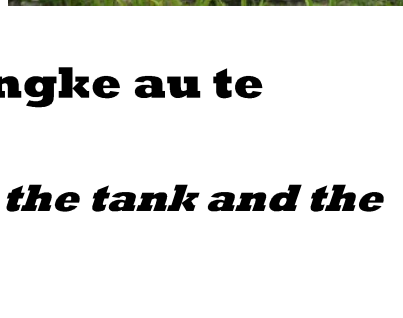
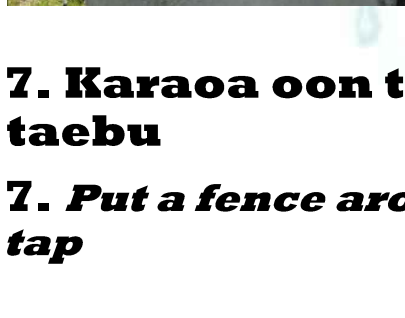
5. E na riai ni rabunaki matan te tangke

5. *Tanks should be sealed*



6. E na riai ni boraoui/aki mwanunu bukin te tangke

6. *Tank should have a flat base*



7. Karaoa oon te tangke au te taebu

7. *Put a fence around the tank and the tap*



8. E na iai te bwaibi man te tangke are e na kanakoa te ran nakon te mwanibwa ae kaan ngkana e taburake te tangke

8. *Route overflows under the ground to a nearby well*

