

# CNMI RAIN GARDENS

A RAIN GARDEN MANUAL FOR CNMI RESIDENTS



*Keeping the Land and Sea the Pride of Our Culture.*



CNMI Micronesia Challenge



# Why Rain Gardens?

Helping the Environment One Plant at a Time

Rain gardens are sunken depressions, or ‘dips,’ that allow **stormwater** to soak into the ground. Stormwater becomes a problem when it picks up pollutants, like dirt, or oil and other toxic materials, or when it goes through piggeries, farms, and gardens full of fertilizers. This polluted stormwater eventually goes into our oceans and directly affects our coral reefs. **Rain gardens** can help slow down, collect and filter stormwater. They can help reduce the amount of stormwater, and as a result, reduce the amount of pollutants and **sediment** that goes into our ocean after rainfall.

**Stormwater:** water from storm events that does not soak into the ground, but runs off hard surfaces, collects and eventually flows downhill toward the ocean

**Rain garden:** a garden built in a depression to catch stormwater runoff and filter pollution out of the water

**Sediment:** a build-up of dirt and loose soil



Our ocean. Our island. Our responsibility.

As a community, we want what is best for our environment because that will help our families and our livelihoods, and that means looking out for our ocean. The ocean is a sacred part of our island culture, and also plays a huge role in Saipan’s tourism-based economy. As islanders, we know that taking care of our ocean means taking good care of the land areas that are near the ocean. By building a rain garden, you can help reduce the amount of pollution that goes into our ocean, thus steering us into a cleaner, more beautiful future.



## Choose areas:

At least 10 ft. away from any building

Without utilities or pipes

At least 3 ft. away from big trees and their roots

Without steep slopes or hard bedrock

Away from your septic tank or leach field

Water goes into the rain garden through the inlet, and the depression, or 'dip,' of the garden helps to hold the water while it soaks into the ground or gets taken up by the plants (diagram by Hui o Ko'olaupoko).

# Building Your Rain Garden



## Step 1: Pick a location

Choose a location where water sits, but typically dries up within 24-hours after a storm. A simple way to test this is to do a soil test (see blue box below). You also have to make sure you have a way for your water to get in and a way for your water to get out (see step 2). Refer to the *Choose Areas* box above for setbacks to look out for.

## Step 2: Get the water in

Make sure there is a way for water to go into your garden. The easiest inlets are a rooftop downspout, driveway or culvert that directs stormwater into the depression. You may have to dig a trench, redirect your downspout or cut back grass to make sure the water easily flows in during a storm.

Estimate how much water is coming in by measuring the area of hard surfaces in the drainage area, like the roof or driveway, that flows directly to the site where you want your garden. To find out how big your rain garden should be, refer to our sizing guide below.

**Sizing Guide:** Use the estimated drainage area to find the ideal rain garden area for your yard

$$\frac{\text{Drainage\_area}(\text{ft}^2)}{4} = \text{surface area of rain garden}$$

Ex: If you expect 1,000 ft<sup>2</sup> of water to pass by the site, then your garden should be 250 ft<sup>2</sup>. Bigger is usually better, but remember, you have to maintain the area that you plant! Once you know the area, you can choose the shape and dimensions that fit your yard.

## Soil Test

Dig a hole that is 12 in. deep and 6 in. diameter, then fill it with water. Wait for it to drain, and then fill it again. If it drains within 12-24 hours, then your soil is good. If it takes longer than 24 hours to drain, you will need to mix your soil with sand and compost to achieve better drainage before you add your plants.

## Step 3: Dig

You want your garden to catch water and act like a mini pond. Your garden should 'dip,' or have a depression. Dig around 6" -8" deep for the deepest part of your rain garden (usually in the middle). Then the sides gradually slope up until at least the upstream side is level with the surface. Refer to the diagram at the top of the page to see an example depression. A hump or "berm" on the opposite side from the inlet holds the water in, but allows water to overflow in really big storm events.



## Step 4: Choose plants



Vetiver

Grows tall and dense. Slows down water.



Taro

Does well during all seasons after rooted. Likes water



Red Ginger

Small, with flowers. Attractive.



Ti

Grows tall. Does well during dry season.

Here are some examples of plants that work well in CNMI rain gardens. Feel free to experiment with others. You can get plants at your local nursery or from CNMI Forestry (see contact information below).

You want a mixture of plants that can handle Saipan weather patterns and seasonal changes. Look for a mix of shrubs, flowers, grasses, and small trees. Native plants usually do the best in local weather conditions. Depending on the shape and depth of your rain garden, you will find some spots are wetter and require plants that can handle flooding, like taro. Other spots will usually stay drier and need drought-resistant plants like vetiver grass. Pay attention to sunny and shady spots too to figure out where to place different plants.

## Step 5: Maintenance

It is important to maintain your garden - like a car, it won't do its job if you don't take care of it.

### *Garden Tip:*

Right after you put your new plants in your garden, make sure to add 3 inches of wood chips or mulch on top of your plants. This will keep them moist and keep weeds away

Pay special attention to your garden for the first couple of months following the digging and planting. During the dry season, water your plants as needed and keep an eye out for dying plants. Use additional plants to fill in bare areas throughout the first 6-12 months.

Make sure to weed your garden at least once a week. Do not use pesticides or fertilizers on your garden, as they are chemicals and harmful to our environment.

If you notice that your inlets and outlets (areas where your water comes in and out) are filled debris, clear them out. If they are blocked by soil, remove the soil and mix it with mulch or compost and re-layer your garden. Look out for debris after every big rain event.

## Contact Information

For additional information or ideas for your rain garden.

**DEQ – Nonpoint Source Pollution Branch**  
670.664.8500

For more information on rain gardens and proper installation, to learn about preventing pollution or for general inquiries.

**CNMI Forestry**  
670.256.3318/19/20

For more information on plants to use in your garden.