How to Construct a Mulch Basin

WHAT IS IT?

A mulch basin is a pit filled with mulch where household wastewater, such as water from washing dishes or baths, can be thrown. As the mulch decomposes, it adds nutrients to the soil and also helps to filter the soap. The mulch basin is planted with perennial crops, such as banana or papaya, and vining or spreading crops, such as pumpkin, to make use of the wastewater.

WHY DO WE DO IT?

The Permagarden Approach encourages recycling of household waste materials to make efficient use of all resources. Reusing household wastewater is a great strategy for extending growing seasons into the dry season and can be an important food security strategy for areas with very limited rainfall.

TERMS USED

Berm: A small raised barrier of soil placed downslope of a water harvesting structure, or around a mulch basin, to stop water from flowing downhill. The berm allows water to sink into the ditch so that it can be stored in the soil. Berms are planted and mulched to prevent them from eroding.

Dry mulch: Dried organic material, such as leaves or grasses, that can be used to cover bare soil. Mulch can regulate soil temperatures, protect soil from erosion, suppress weed growth, and add organic material to the soil.

Overstory: The top layer of foliage. In a forest, the overstory is the canopy created by the tallest trees.

HOW TO

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METHOD

STEP 1
Determine areas in the compound where wastewater is being generated. Often these areas are found near the kitchen, where clothes are being washed, around the bathing area, or where ablution water is being used. Locate the basin(s) near these water sources and make sure there is adequate space around the structures for plants to grow.

STEP 2
Gather dry mulch material and the seedlings that will be planted around the mulch basin.

STEP 3
Mark the location of the basin by drawing a 1-2 meter circle in the soil. Make sure there is another 1 meter of free space around the circle for the excavated soil.

STEP 4
Dig the basin approximately 1 meter deep and pile the excavated soil in a circle around the pit.

STEP 5
Shape and smooth the excavated soil into a berm that circles the basin.

STEP 6
Break up any large clumps of soil and add manure or compost to the berm.

STEP 7
Add different types of mulch materials to fill the basin all the way to the top of the surrounding berm. Make sure the material in the basin is not compressed by layering in a few sticks as well.

STEP 8
Mark three planting holes on the outer slope of the berm for either banana, papaya, or both kinds of plants. These overstory plants should be located equidistant from each other, thus forming a triangle. If needed, only a single banana can be used as an overstory.

STEP 9
Begin by digging planting holes for the overstory plants. Make sure the soil is loose and amended with compost or dry manure within the first 40-60 cm of the planting hole. Add water to the bottom of the hole and plant the banana suckers or papaya seedlings.

STEP 10
Plant sweet potato cuttings, taro, watermelon, or other water-tolerant plants on the inner face of the berm.

Additional Tips

If a large amount of wastewater is expected, such as at an ablution block, marketplace or communal hand-washing area, a system can be built that drains water directly into a mulch basin or other growing area. It is important to ensure the basin can hold the expected water. One cubic meter of excavated space can hold 1,000 liters of water. Calculate how much wastewater will be generated daily to make sure the basin is big enough.

STEP 11
Plant more drought-tolerant vegetables on the outer face of the berm. Plants help stabilize the soil of the berm and use all the wastewater provided. The berm can be intensively planted on its inner face and outer face so that two layers of plants are created – the overstory and the shrub layer underneath.

STEP 12
Mulch the berm to protect the soil and minimize evaporation.

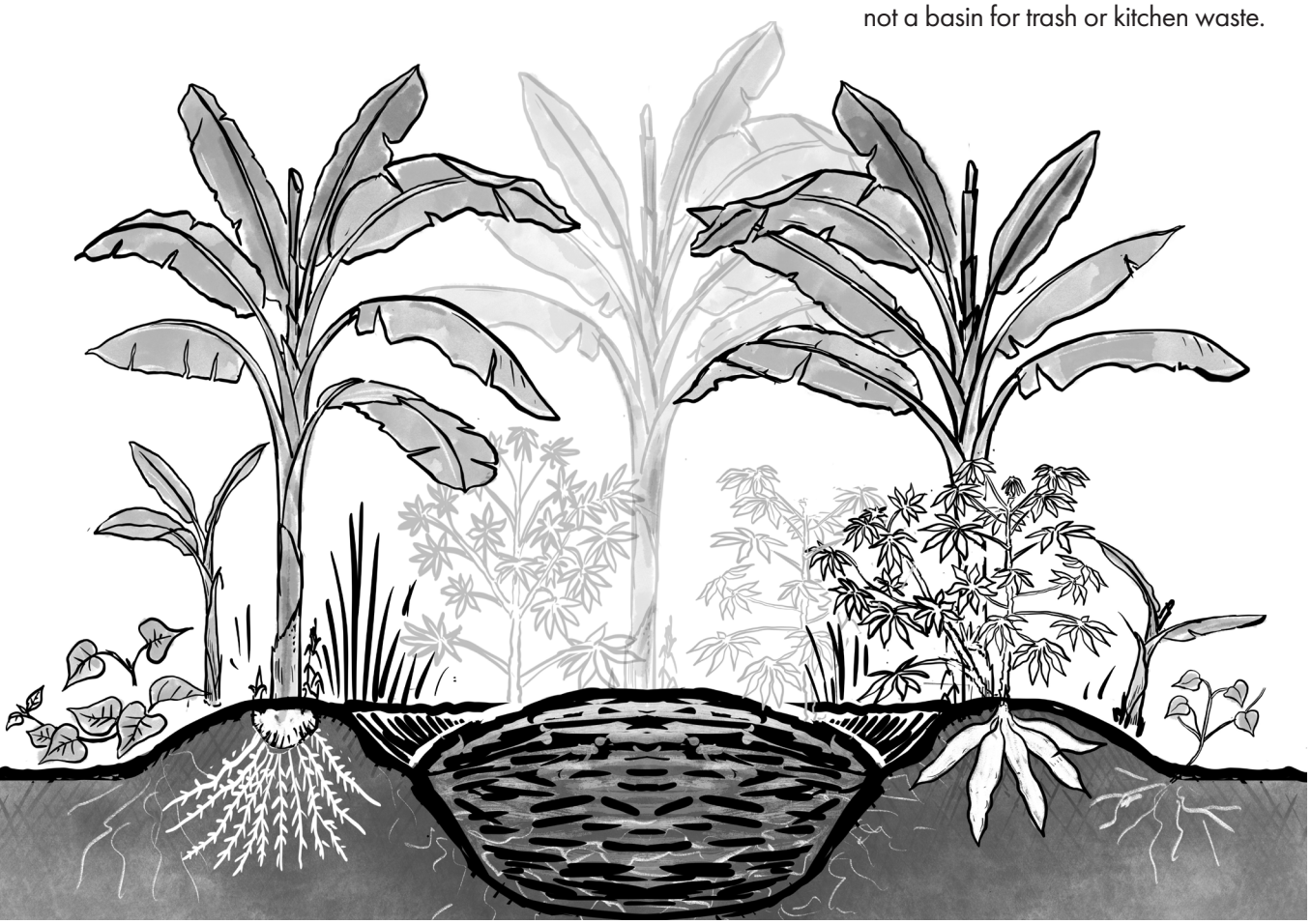
STEP 13
Add enough water to the basin to saturate the mulch and soil at the bottom of the basin.

STEP 14
Ensure the mulch basin is protected from animal and human activity.

STEP 15
Each day, pour the wastewater directly into the mulch at the center of the basin. The plants will most likely need supplemental irrigation until they are firmly established and their roots can reach the wastewater in the basin.

STEP 16
Add more dry mulch material as needed to keep the mulch even with the berm.

STEP 17
Make sure the household members know that this is a basin specifically for wastewater and not a basin for trash or kitchen waste.



This document is made possible by the generous support of the American people through the United States Agency for International Development (USAID). The contents are the responsibility of the SCALE Award and do not necessarily reflect the views of USAID or the United States Government.