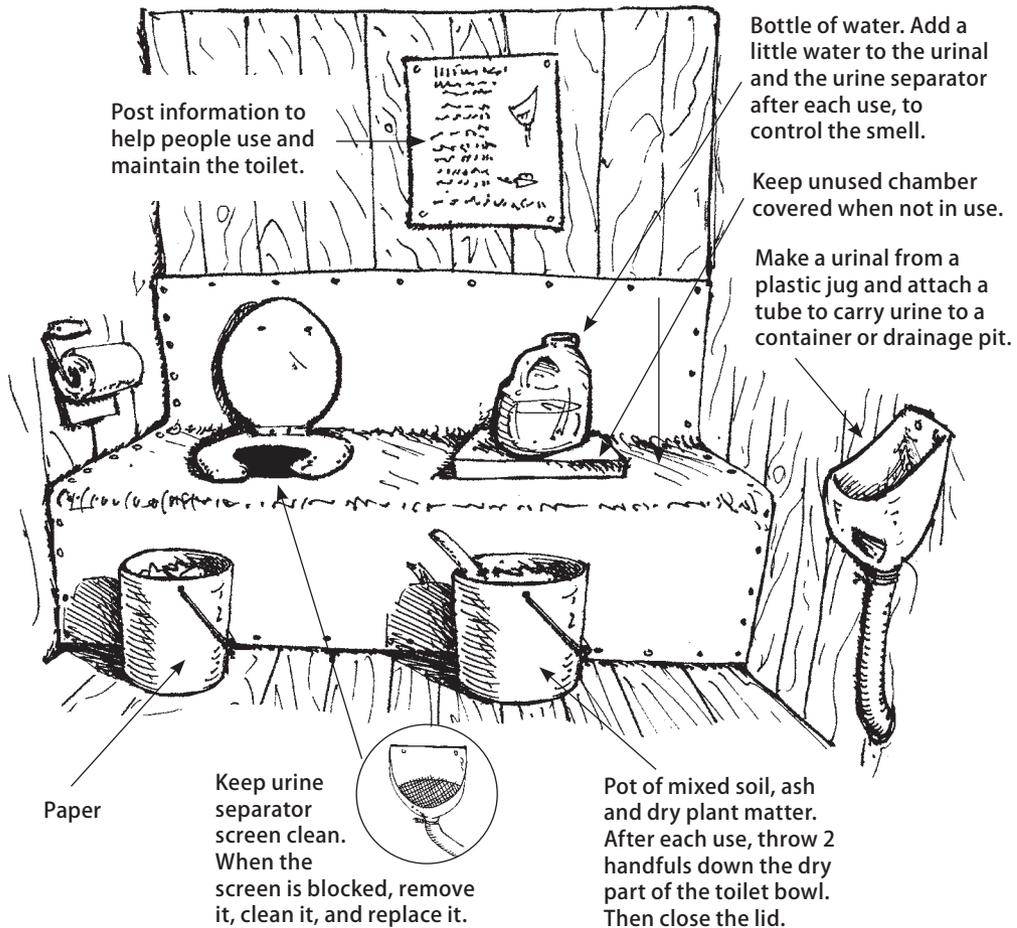


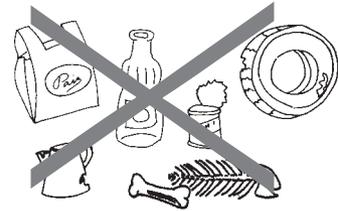
To use and maintain a 2 chamber dry toilet



- Make sure no water gets in the feces holding part of the toilet chamber.
- If the contents of the toilet get wet, add more dry matter.
- If the toilet smells bad, add more dry matter, and make sure the vent pipe is clear.
- If the pile of feces builds up too high, use a stick to push it down.
- When the urine pot is full, empty it and make fertilizer (see page 134).
- When one chamber is full, use the other chamber. Be sure to cover the chamber that is not being used.
- It is best to let the feces sit for a full year before emptying the chamber. After a year, or when the second chamber is full, empty the first chamber and repeat the process.

Do not put garbage in the toilet

For ecological toilets to work, they must be used only for human waste. Women having monthly bleeding may safely use ecological toilets. But sanitary pads and other products should not be put in the toilet.



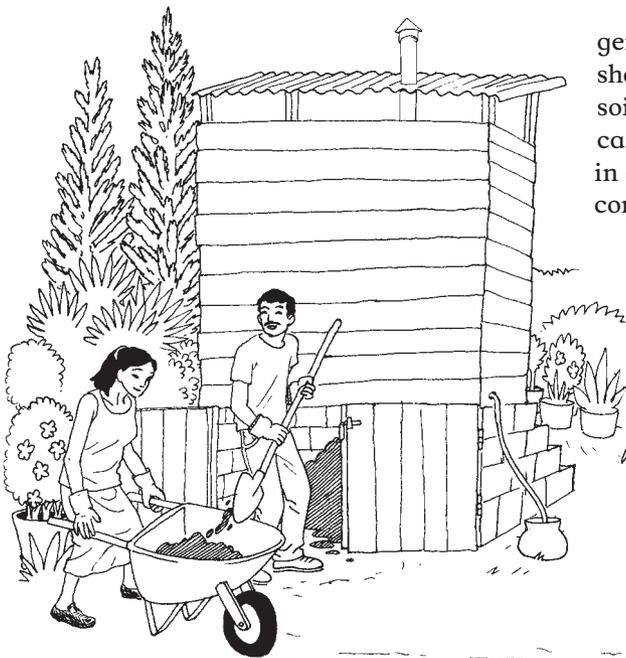
Do not put garbage in the toilet.

Ecological toilets cannot be used to dispose of things that will not break down, such as cans, bottles, plastic, tampons, or large amounts of paper. It is OK to use small amounts of paper, leaves, sawdust, and other plant matter because these things break down into soil.

When solid fertilizer is safe to use

The contents of a dry toilet are ready to remove when they are dry and have little or no smell. For this to happen, they should be kept dry inside the toilet chamber for 1 year.

When you think the contents are ready to remove, open the chamber. If the pile is wet, add dry plant matter or soil mixed with ash and let it sit for several more weeks. If the pile is dry and does not have a strong smell, it is ready. Remove it with a shovel.



Remove dry material for use as fertilizer.

After drying out for 1 year, most germs will be dead and the material should be safe to add directly to garden soil. But if there is any doubt, the waste can be stored in open bags or buckets in a dry, sunny area or added to a compost pile.



It is important to wear gloves and shoes when handling human waste, and to wash well after emptying the toilet.

Urine fertilizer

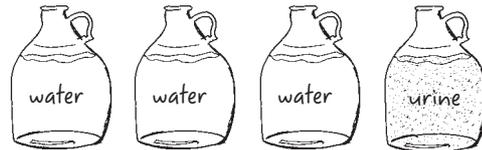
Some farmers use urine mixed with water as a fertilizer because urine carries valuable nutrients such as nitrogen and phosphorous that can help plants grow. Urine is much safer to handle than feces. However, the same nutrients that make it a good fertilizer can pollute water sources. Also, urine can carry blood flukes (see page 56). Because of this, it is important not to put urine into water sources, or near where people drink or bathe.

To make simple urine fertilizer

Store urine for a few days in a closed container. This will kill any germs the urine contains, and will also prevent nutrients from escaping into the air.

To make fertilizer, mix 3 containers of water for every 1 of urine. You can fertilize plants with watered down urine as often as 3 times a week.

Plants fertilized with urine can grow as well as plants grown with chemical fertilizers, and need less water. Plants that have leaves you can eat, like spinach or other dark green leafy vegetables, grow best. Always wash your hands after handling urine.



3 jugs of water plus 1 jug of urine = safe fertilizer

To make fermented urine fertilizer

Too much trouble?

Adding compost to urine, and letting this mixture rot and turn sour (ferment) can create new soil for planting.

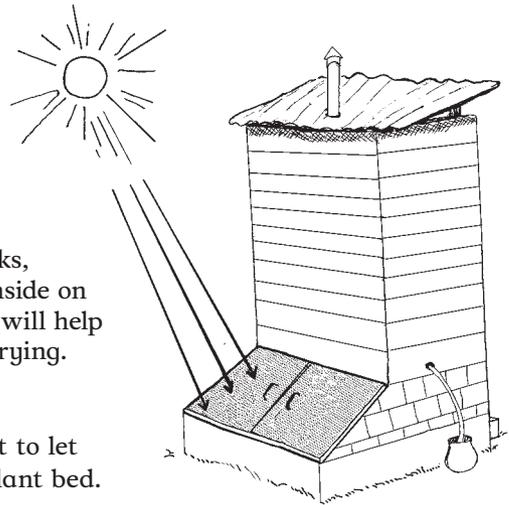
1. Collect urine from dry toilets. For each liter of urine, add 1 tablespoon of rich soil or compost.
2. Let the mix sit uncovered for 4 weeks. This will smell bad, so do it in a place away from people. The urine mixture will ferment and turn brown.
3. Fill a large container with dry leaves, straw, or other dry plant matter. Line the container with thick plastic to prevent water leakage through the hole in the bottom.
4. Add fermented urine. The best mix is 7 parts plant matter to 1 part urine (about 3 liters of urine for every 30 cubic centimeters of plant matter).
5. Cover with a thin layer of soil (no more than 10 cm). Plant seeds or seedlings.
6. Water every 2 days with a mix of 1 part urine to 10 parts water. (This is a weaker mix than we suggest above, because it will be used in closed containers rather than in open gardens or fields.) The dry plant matter will turn to rich soil in 10 to 12 months.

The new soil can be used for planting.

Improved and adapted dry toilets

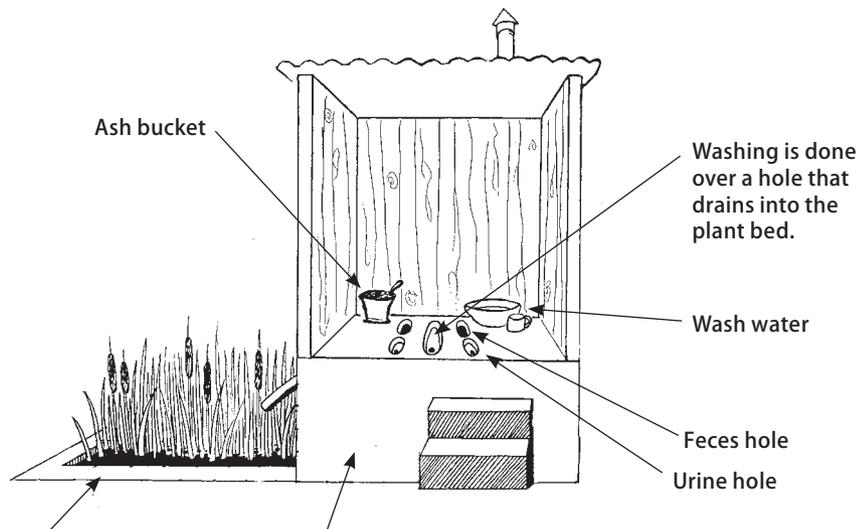
The toilets in this book are only some of the choices for ecological sanitation. They can be improved and adapted to meet the needs of different communities. Some things that will make a dry toilet work better are:

- **Heat from the sun** will help the waste decompose. Build the toilet so the chamber doors face the sun, and paint the door panels black. This will make the chambers heat up, improve air flow, and kill germs faster.
- **More air flow** will also help the waste decompose. Laying bamboo, corn stalks, branches, or other dry plant matter inside on the bottom of the chamber before use will help air flow through the feces for faster drying.



A wash toilet with plant bed

People in India have adapted the dry toilet to let both urine and wash water drain into a plant bed.



The plant bed where the wash water and urine go is filled with sand and gravel and planted with reeds or other local, non-edible plants. When the plants grow too big, they are cut back and thrown into the toilet.

The chambers under the toilet are lined with straw before use, to absorb moisture and make a good bed for the compost. Every time it is used, 1 or 2 handfuls of soil or ash are thrown in. Every now and then, some dry plant matter is added to help the material dry and decompose. After one year of use, the first chamber is opened and the material is put in a compost pile or into the soil for planting.

5 Introduce other toilets that people may not know about. This may include small changes to their current toilets such as vent pipes, or a new type of toilet. (It may include all the methods in this book, and others you may know of.) The group discusses these new ideas.

To know what changes are **needed**, decide what health benefits and environmental benefits matter most.

To know what changes are **possible**, decide which sanitation systems people want and can afford.



6 Lead a discussion about the different methods, asking the group to think about the questions in the chart below. Each person shares his or her opinion about the benefits and shortcomings of each toilet, using numbers to show how strongly he or she feels. For example, 5 may mean the best and 0 may mean the worst. Mark each person's opinion on the chart and count to see which method is judged best.

	Health benefits?	Environmental benefits?	Cost?	Work to clean and maintain
No toilet	_____	_____	_____	_____
Closed pit toilet	_____	_____	_____	_____
VIP toilet	_____	_____	_____	_____
Compost toilet	_____	_____	_____	_____
Dry toilet	_____	_____	_____	_____
Pour flush toilet	_____	_____	_____	_____

7 The group makes new drawings based on the discussion of benefits and the new methods they have learned about. They tape the new and old drawings to large sheets of paper in order from worst to best. Finally, they compare the new order of the methods to the earlier order they had chosen.

- What differences are there?
- What ideas or information caused people to change their minds about what toilets are worst and best?

Based on this discussion, the group can decide what toilet or improvement is best for them.



Communication between men and women is an important part of choosing safe and healthy toilets.