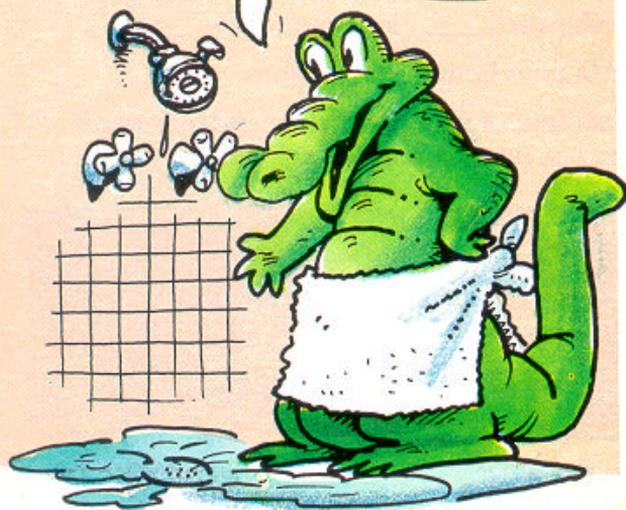


Cleaning up the Wastewater

When you take a shower, use the toilet, wash clothes or dishes, you end up with dirty water.



This is called wastewater, and it can contain leftover food, chemicals, human waste, detergents and other stuff that can be harmful to other people and us creatures in the environment.

Lucky for us, when you send it down the drain and forget about it, other people don't. That's because before

wastewater goes back into the world of water, it gets treated. Then, once the wastewater is treated, we can safely dispose of it or reuse it.

The two main ways that wastewater gets cleaned up are by individual units called septic systems, and by big cleanup facilities called wastewater treatment plants.

Septic Systems:

People who don't live near a big city usually have a septic system to treat their own wastewater. That's because they're too far away from the sewer pipes that connect to a treatment plant.

A septic system has an underground tank, called a septic tank, where the wastewater goes first. In the tank the large solids collect and break down—they call that decomposing. Decomposing happens because there are harmless bacteria in the tank which cause the solid material to turn into water and vapor.

The vapor slowly escapes, and the wastewater flows out of the septic tank through pipes into a septic drainfield. In the drainfield, chemicals destroy bacteria, and fine particles are trapped in the soil. The purified water then filters down into the earth below.





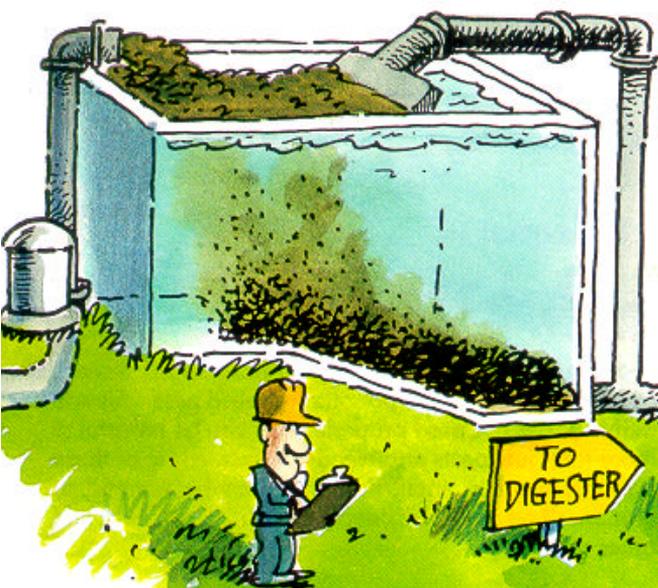
Wastewater Treatment Plants:

In areas with lots of people, there are wastewater treatment plants that do the job of septic systems, but on a much bigger scale. Many people live in areas where their drains connect to sewer pipes, and these pipes carry wastewater from thousands of homes and businesses to treatment plants.

In a treatment plant the wastewater gets cleaned up in several steps, but the steps are in two main groups that are similar to the two stages of a septic system.

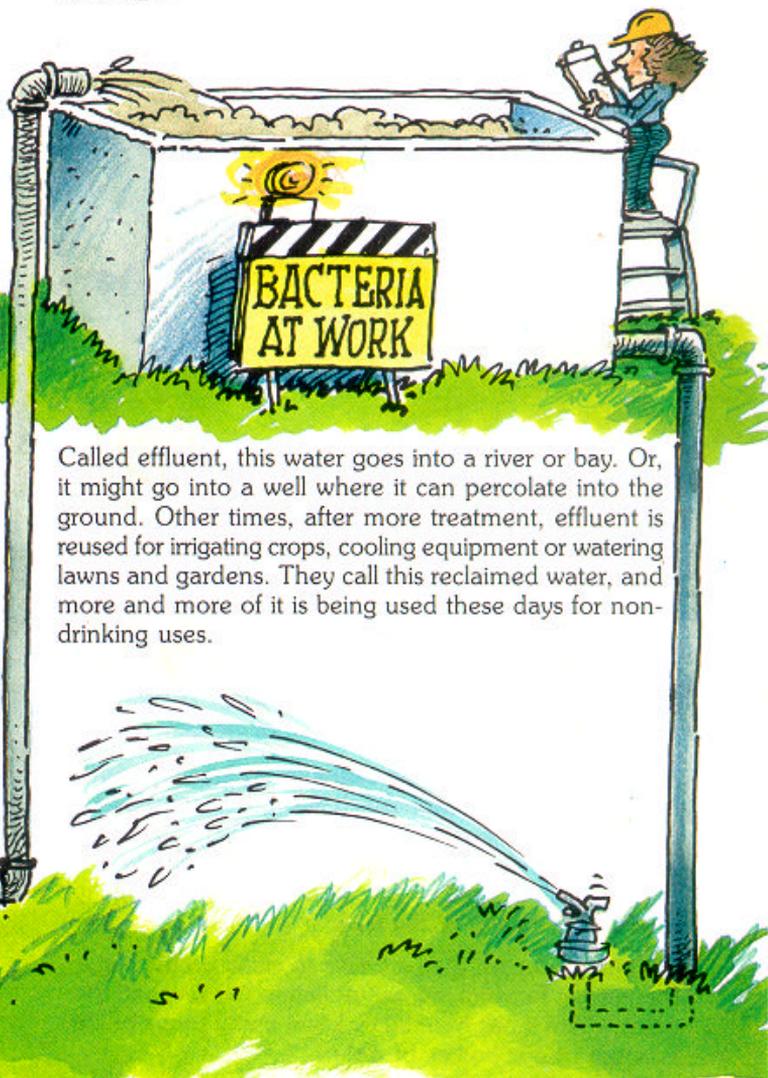
Primary Treatment

The first level is called primary treatment. The goal of primary treatment is to remove solids that either settle to the bottom or float to the top of wastewater. They have things like bar screens, grit chambers and sludge ponds where they take out the materials that are easiest to remove. The wastes go to digesters, which are like septic tanks because bacteria help to decompose the wastes.



Secondary Treatment

The next stage in a treatment plant is called secondary treatment. This process cleans the water even more by using other bacteria which can "digest" smaller impurities suspended in the wastewater. As a result, the treated water coming out of a wastewater treatment plant is much cleaner than when it came in, and is safe to discharge.



Called effluent, this water goes into a river or bay. Or, it might go into a well where it can percolate into the ground. Other times, after more treatment, effluent is reused for irrigating crops, cooling equipment or watering lawns and gardens. They call this reclaimed water, and more and more of it is being used these days for non-drinking uses.