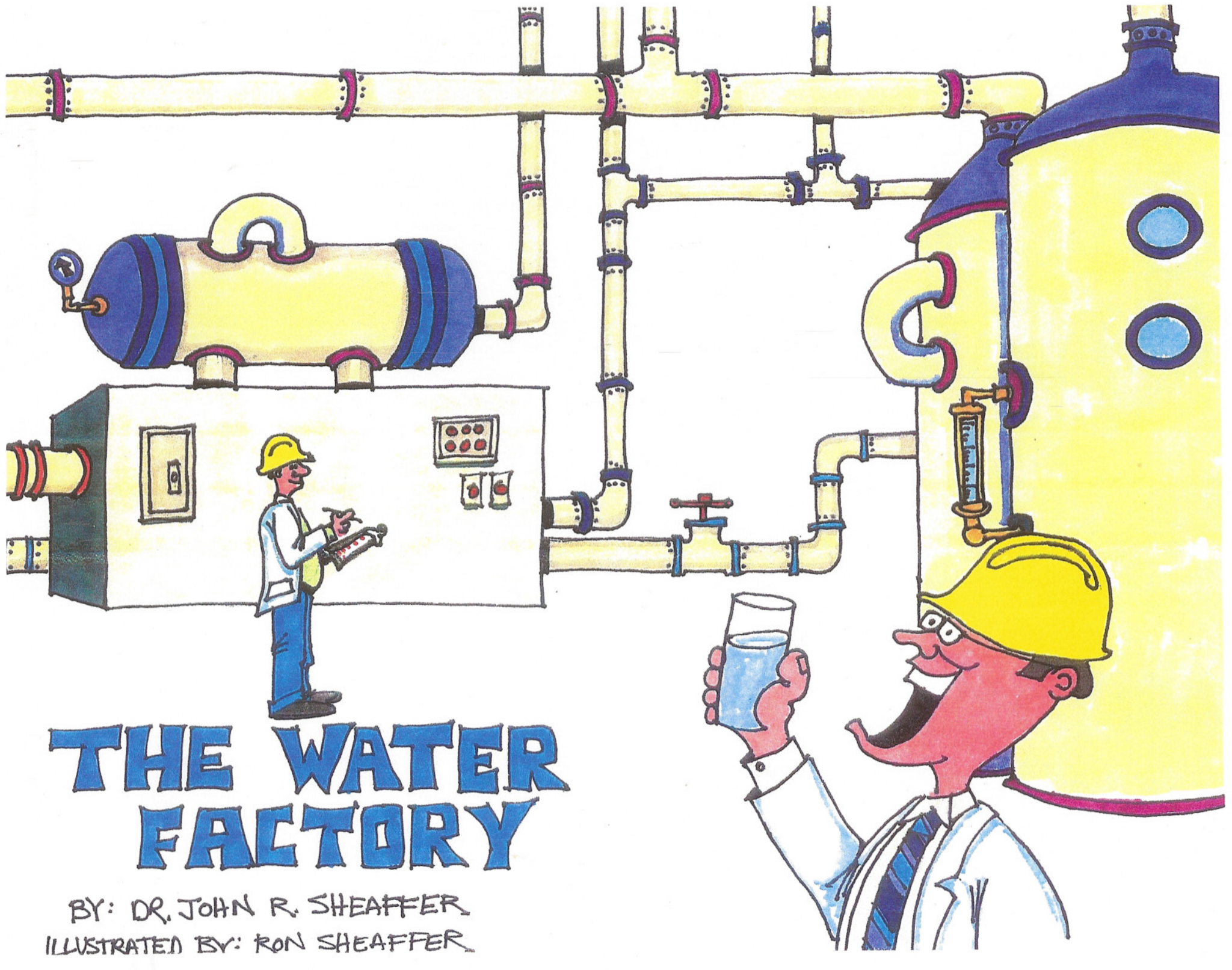
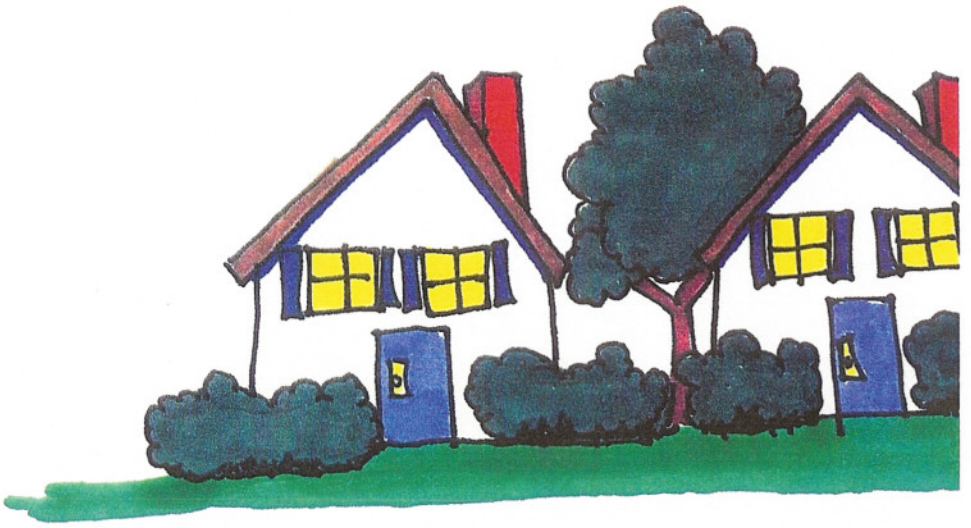


THE WATER FACTORY

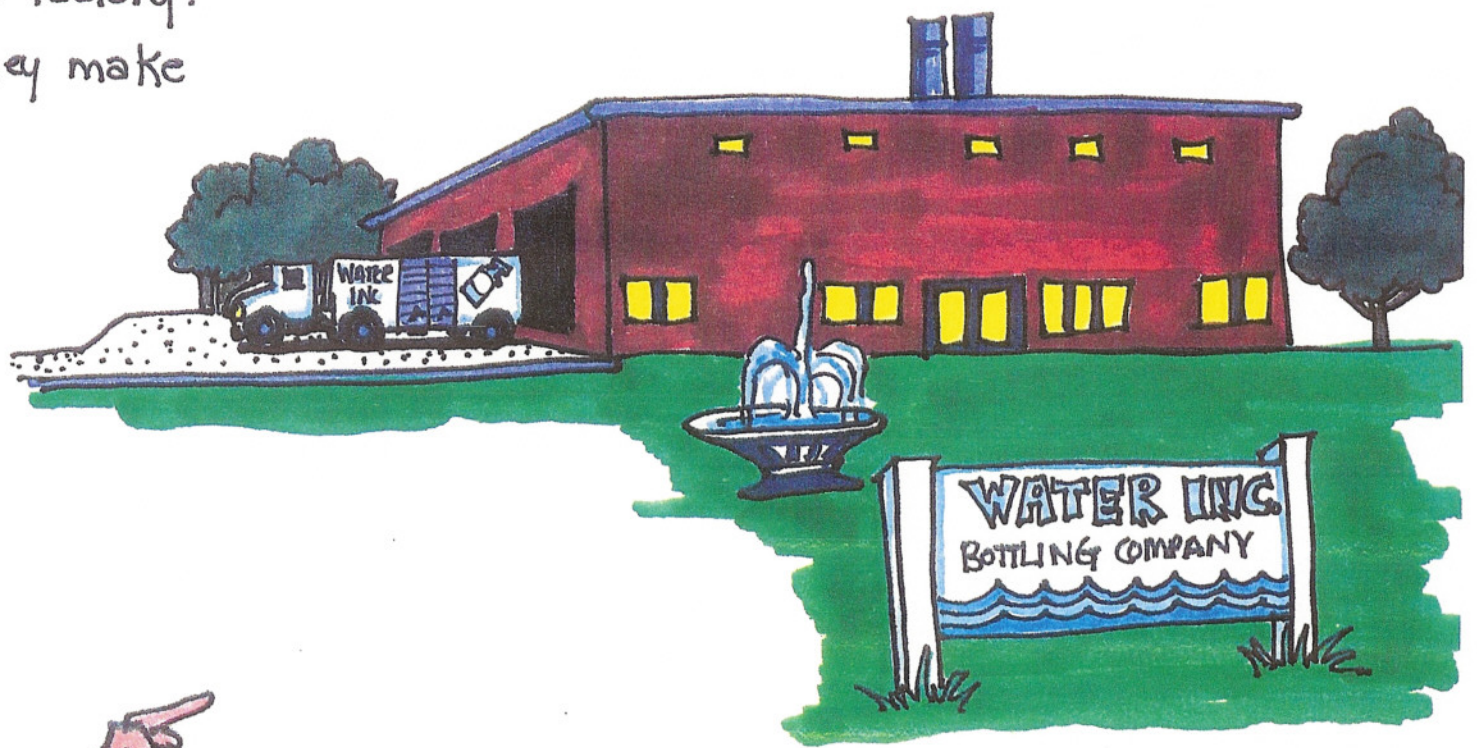
BY: DR. JOHN R. SHEAFFER
ILLUSTRATED BY: RON SHEAFFER

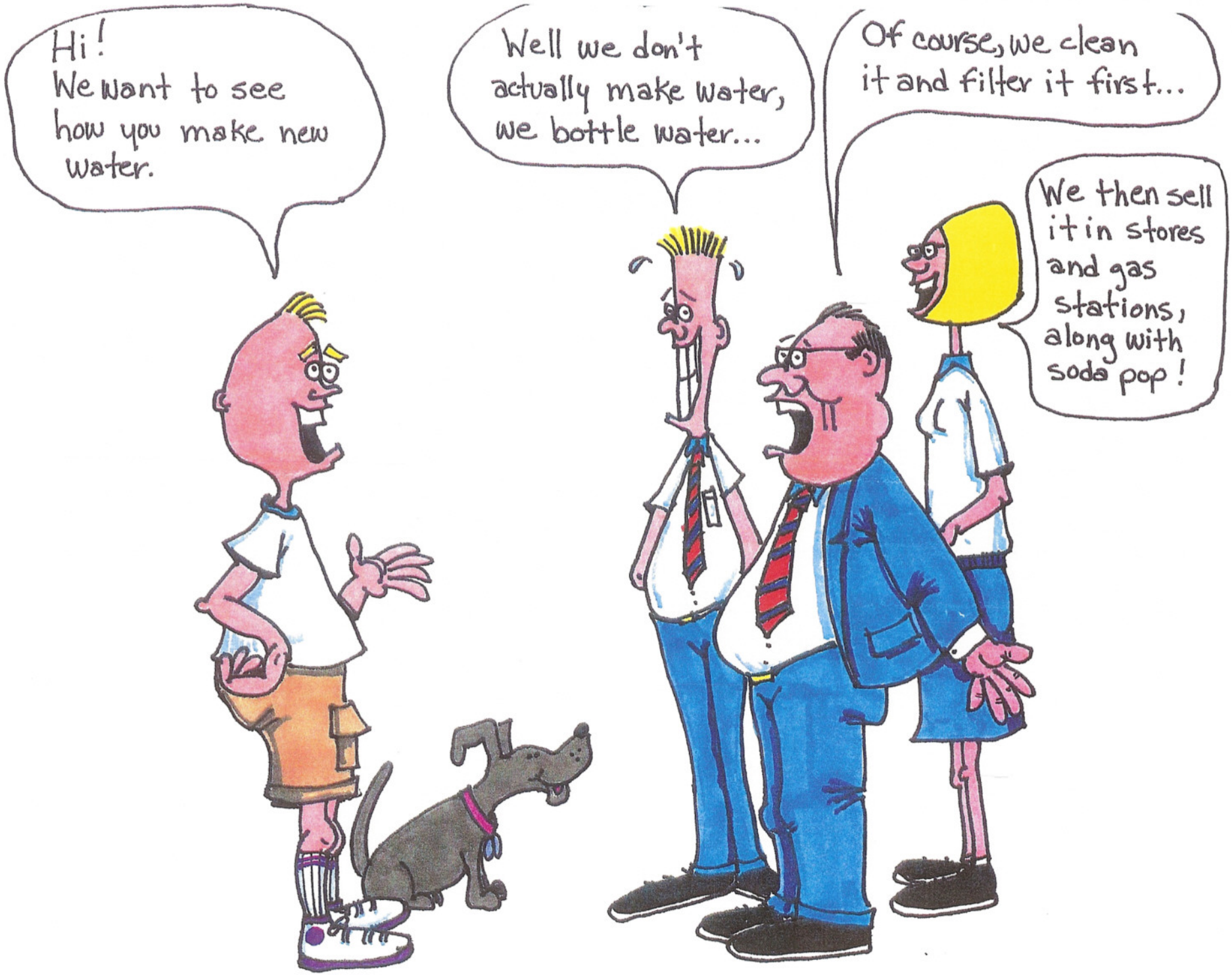

LUCY

I wonder where they make all this new water? Do you think there's a water factory somewhere?
Lucy, let's go find out!



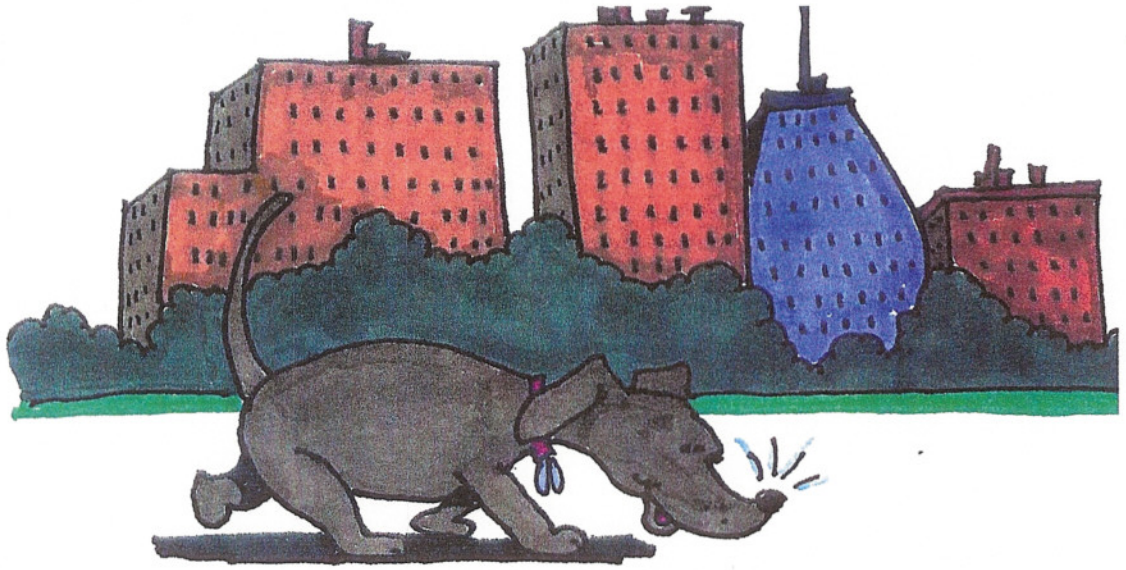
Look!
There it is, the water factory!
This must be where they make new water!

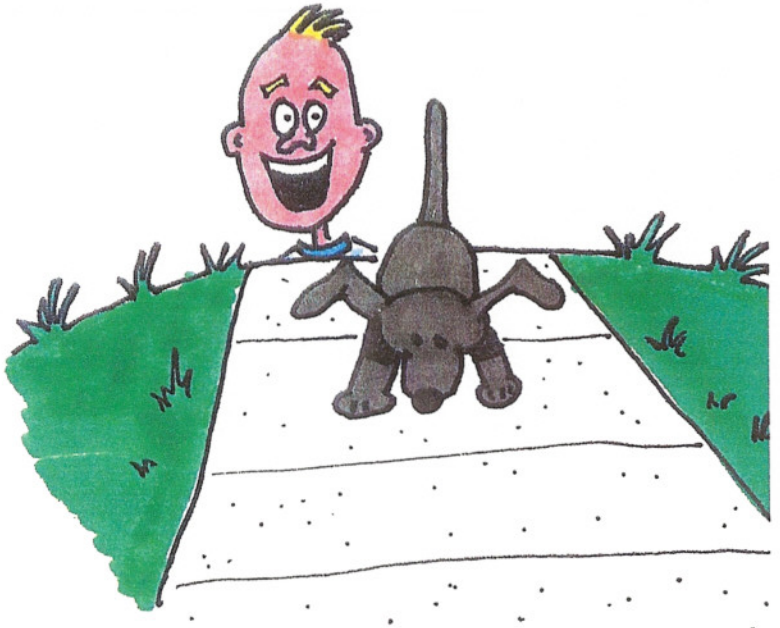



Hi!
We want to see how you make new water.
Well we don't actually make water, we bottle water...
Of course, we clean it and filter it first...
We then sell it in stores and gas stations, along with soda pop!

They usually charge more for the water than the gasoline!

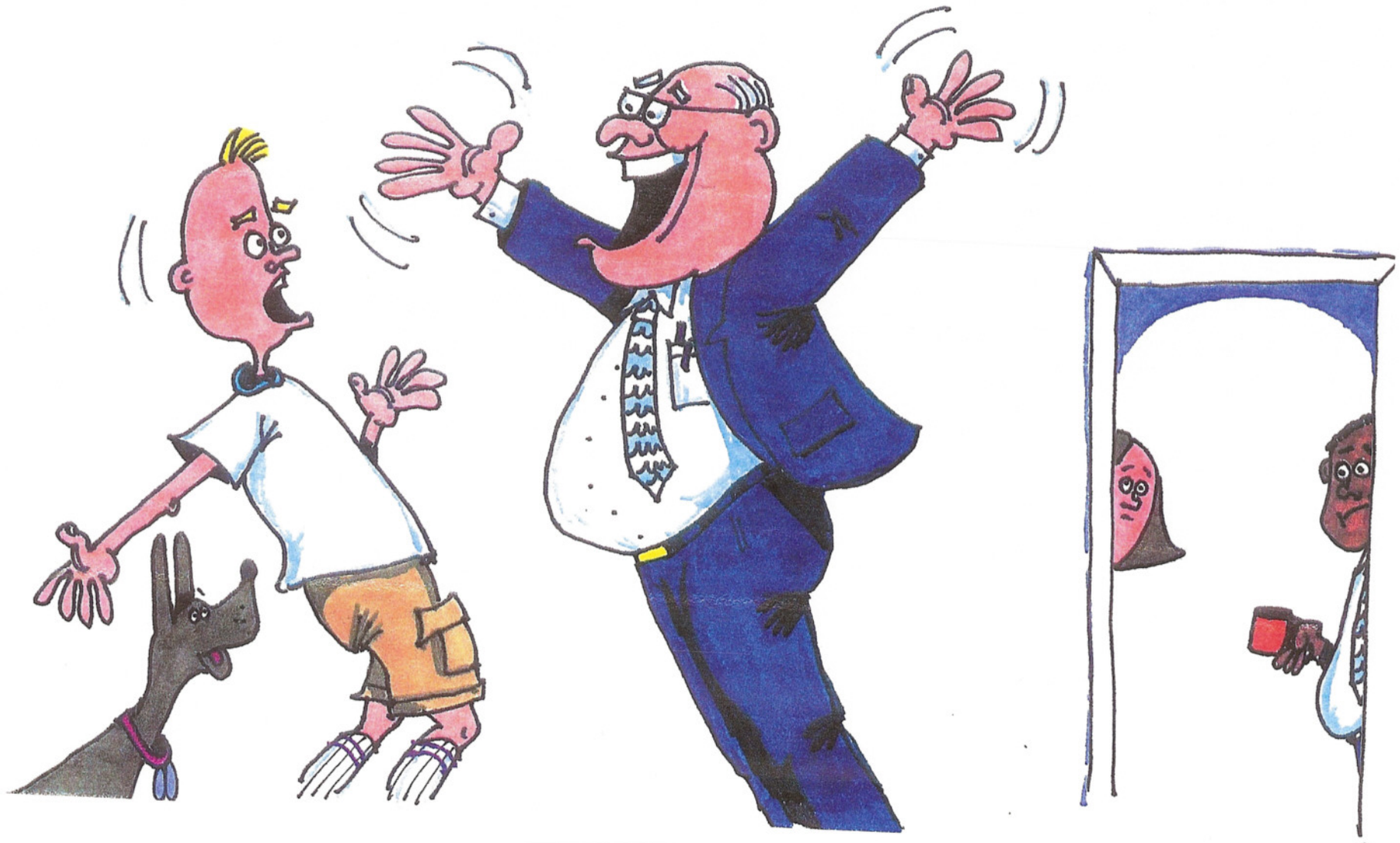
Well, that was interesting, but we still don't know where they make new water.
Okay Lucy, find a water factory!






WATER
UTILITY
LTD.
Good girl, Lucy! This has got to be the place! Let's go in and see how they make new water!

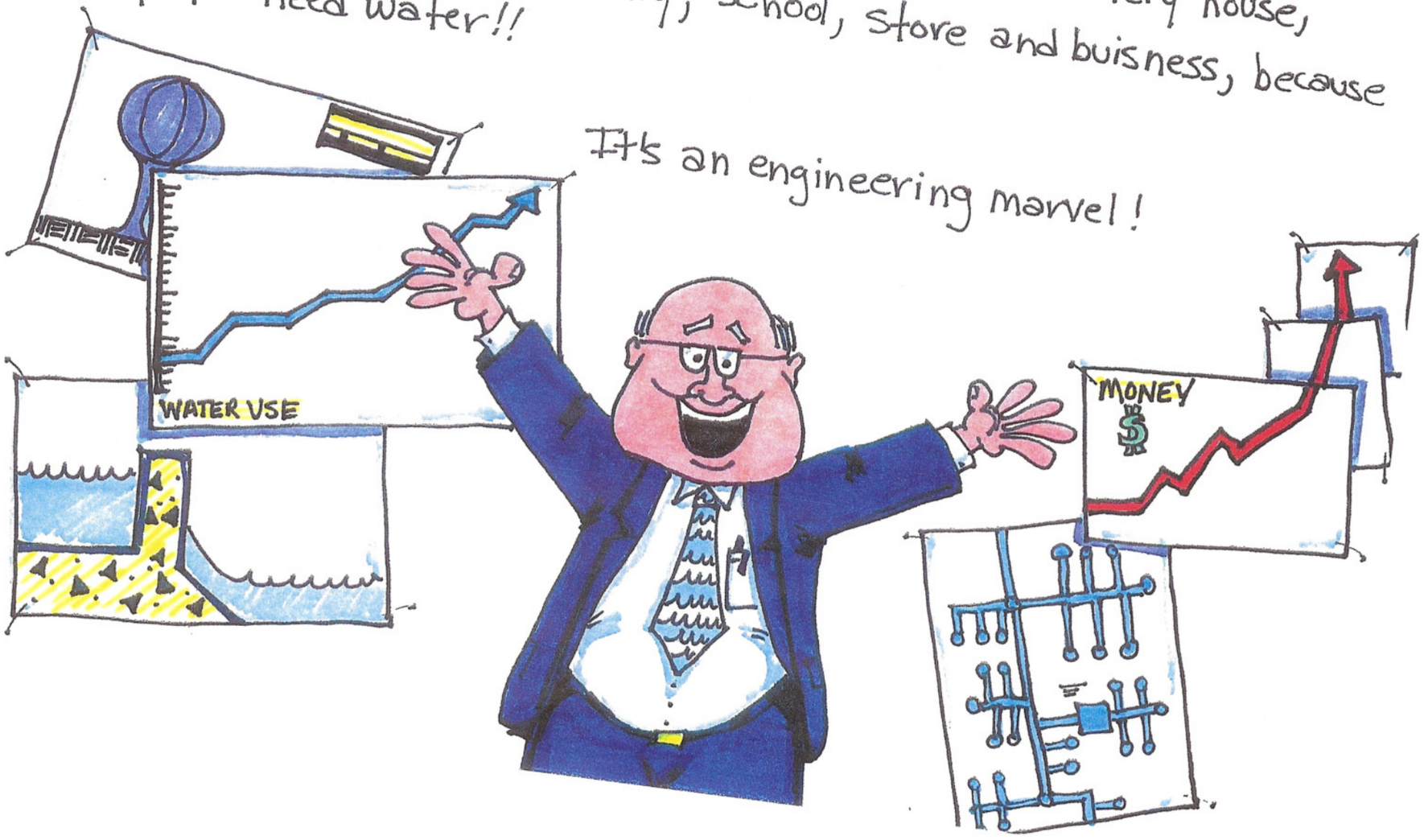
We don't make water; we GET WATER!!
People NEED water; they can't live without it.
So we GET it for them!



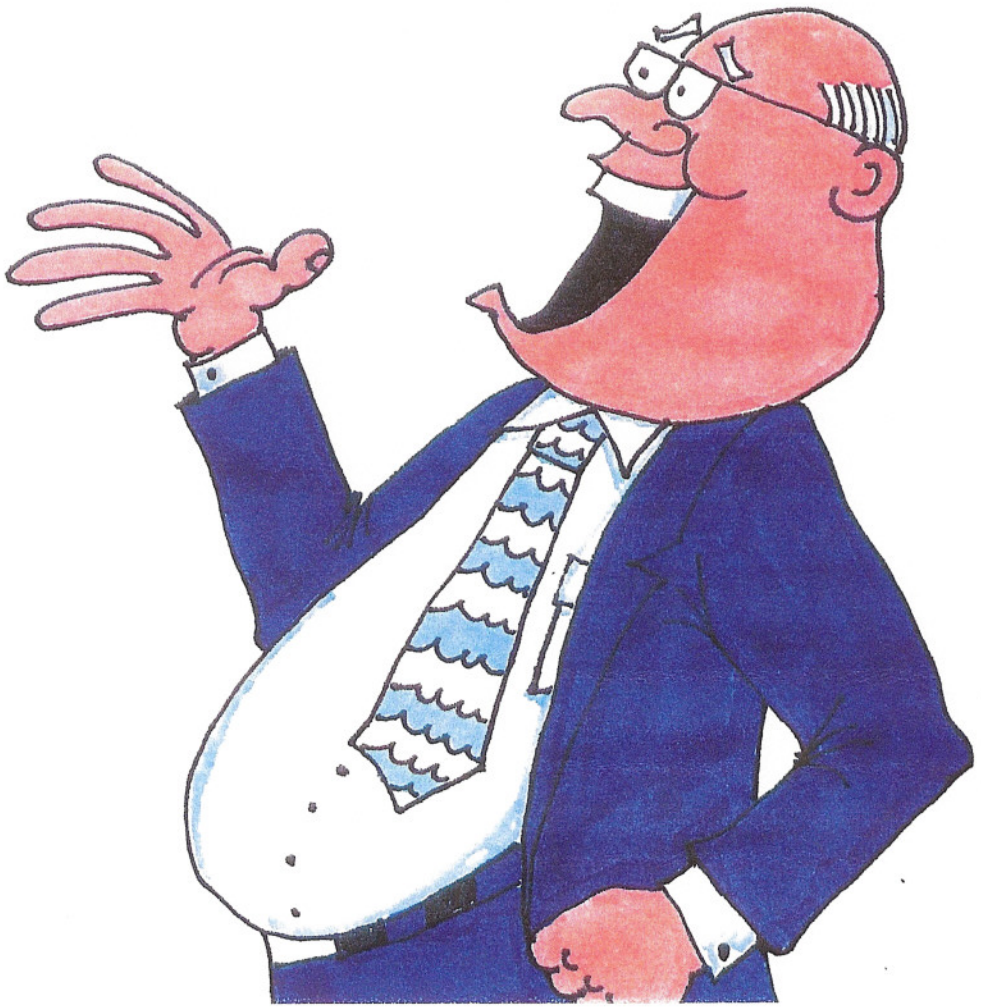
We've dug wells hundreds of feet deep, changed the flow of entire rivers, built dams, and laid thousands of miles of pipe to move water! We drained lakes, made lakes, and we'll do it again, because WE HAVE TO HAVE WATER!!

We've spent billions of dollars to do it, and we'll spend billions more to keep doing it. We pipe water into every house, restaurant, playground, factory, school, store and buisness, because people need water!!

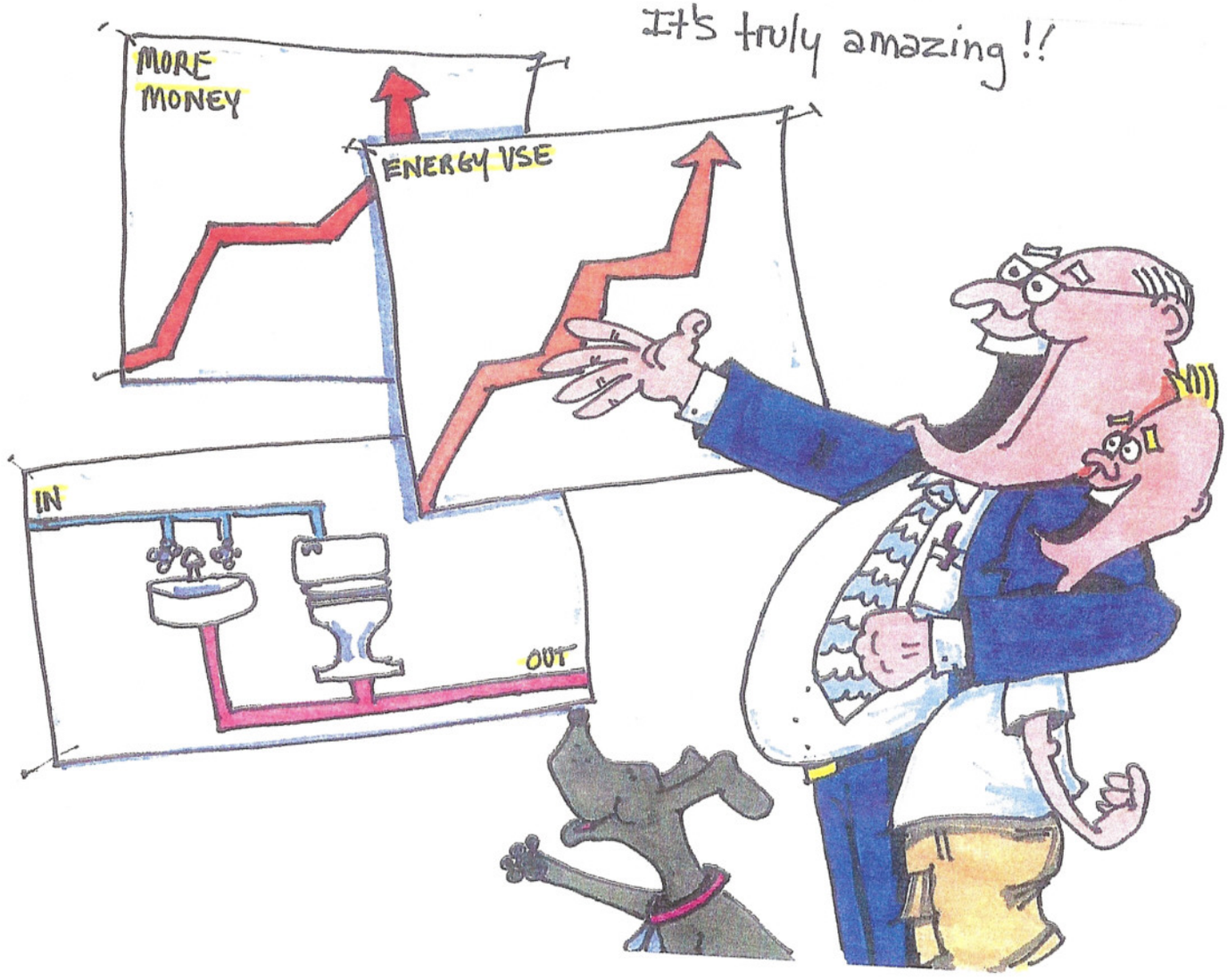
It's an engineering marvel!



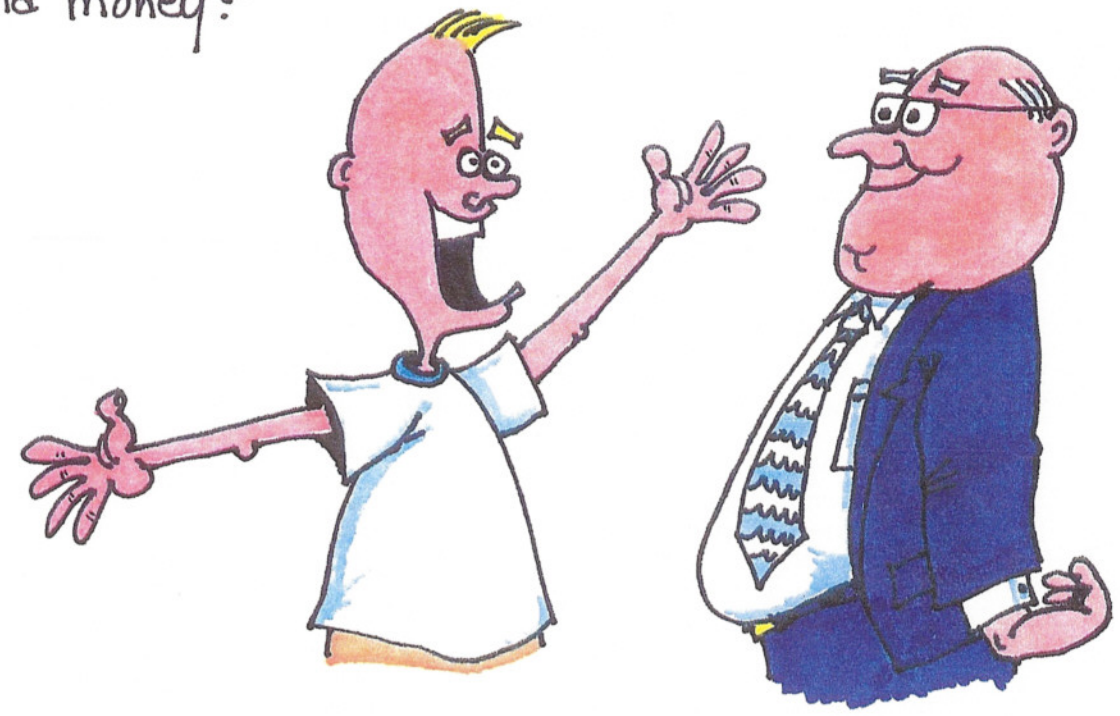
Now think about what we use water for besides drinking and cooking. We wash our dirty hands and bodies with it. We brush our teeth in it, clean our dirty clothes, dishes, pots, pans and floors with it, and we go potty in it!



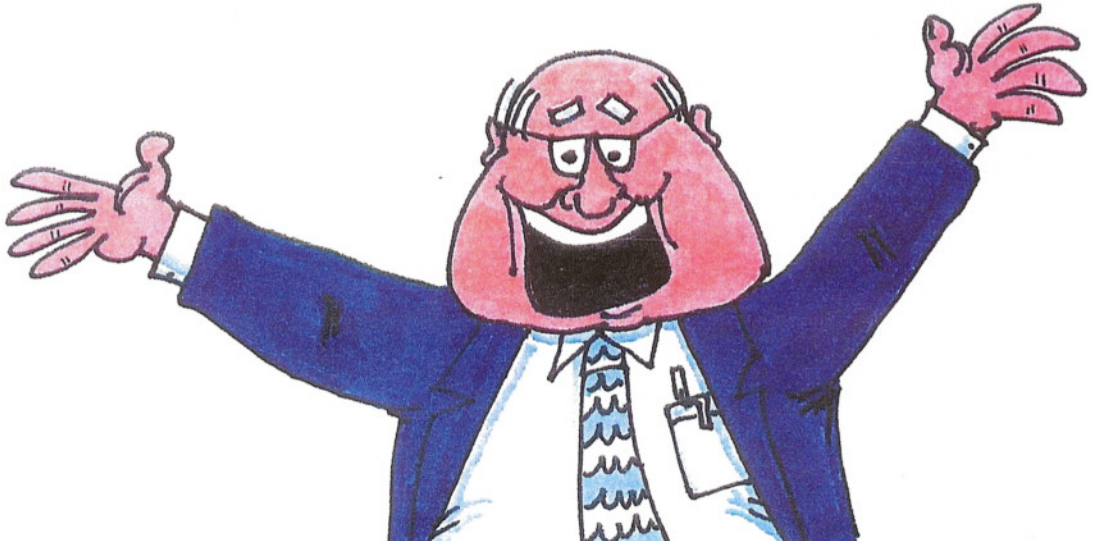
So, after everybody uses it, we bring it all back; we separate it, filter it, churn it, stir it, shake it, grind it, and spin it!!
My, oh my, the money it costs, the energy we use, everyday, week, month, and year!



What do you do with the water after all that effort and money?



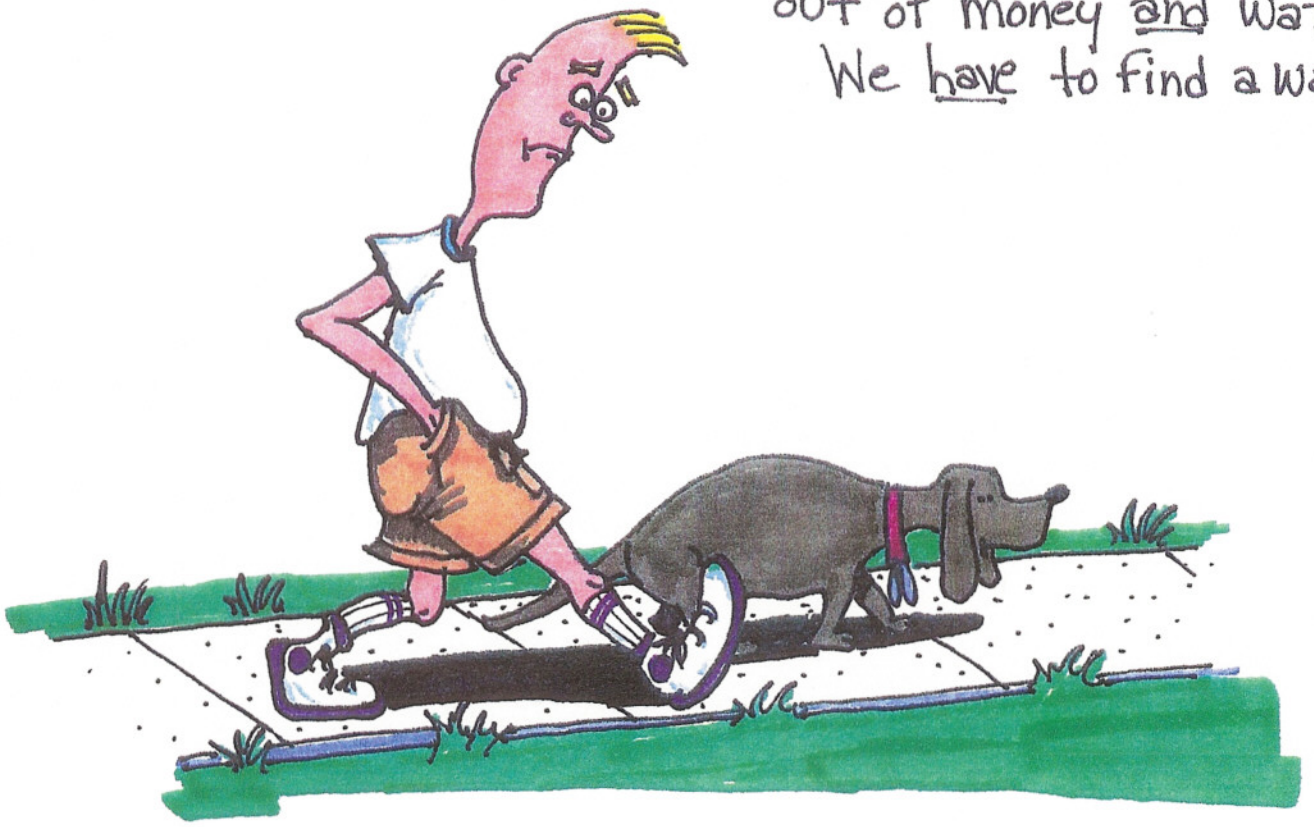
We dump it into the ocean or a river. We throw it all out!!

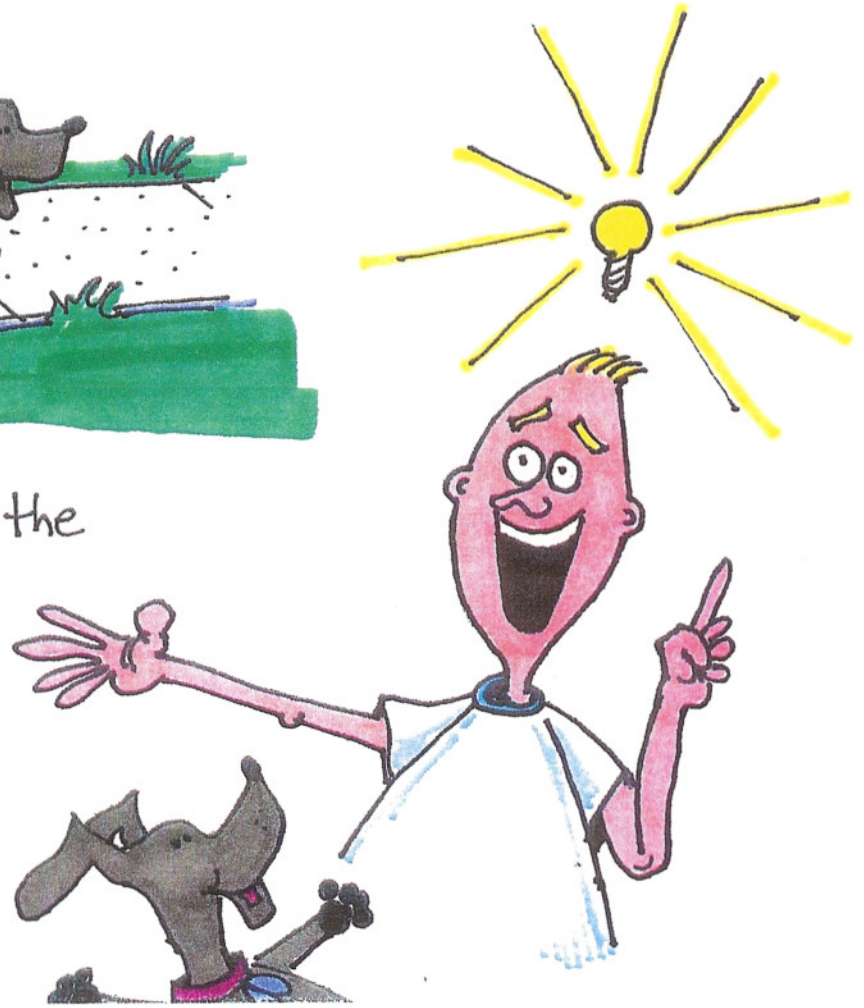


Why in the World would you do that?

Well, you see... we have a hard time removing the nutrients, so we let the rivers do that. Then we spend some more money and energy replacing those nutrients... you know... so we can grow more crops... ah, well, you have to go now... I'm very busy...

I'm so confused, it all seems so wasteful. What will we do if we run out of money and water?
We have to find a water factory.





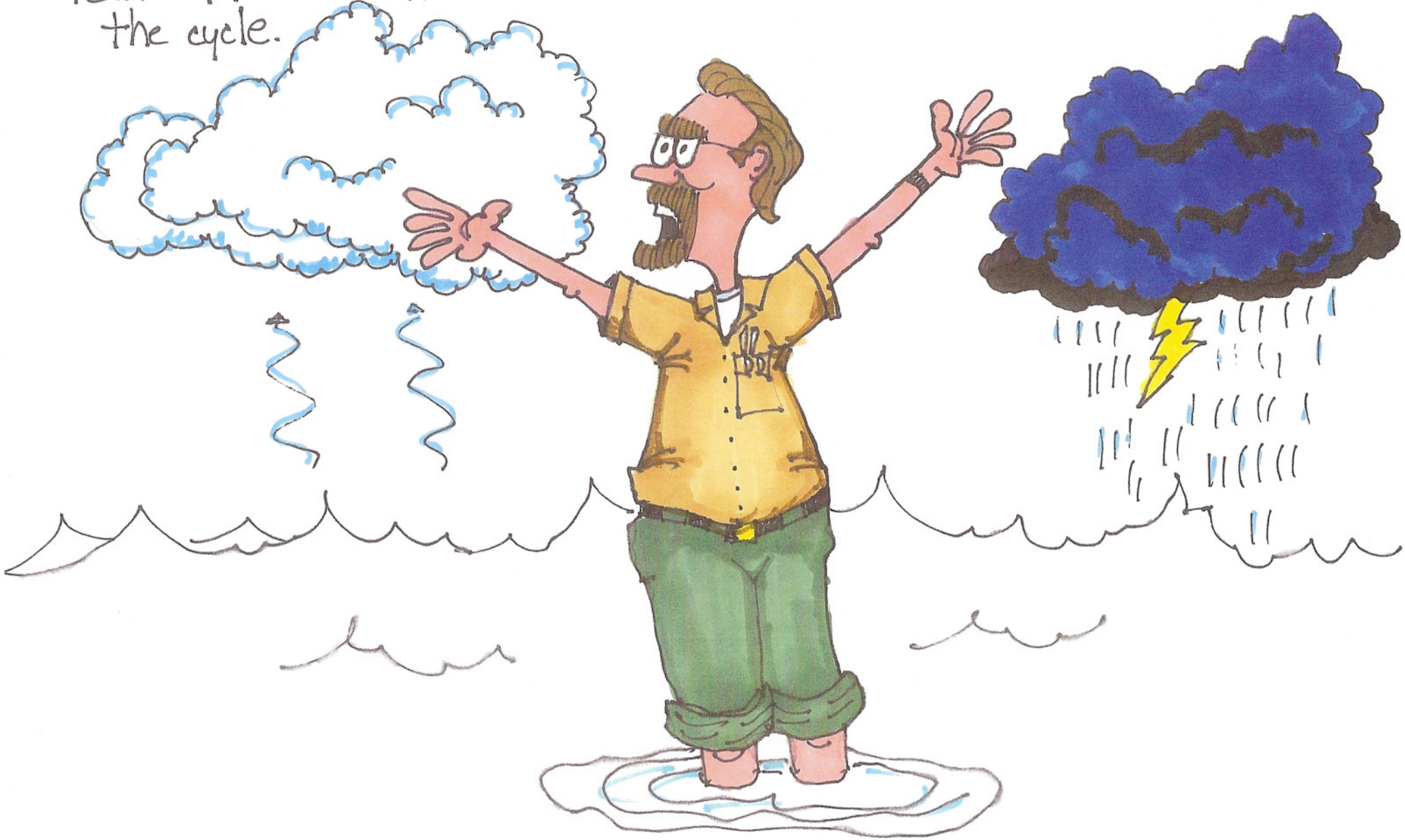
I know! Let's go ask the professor. He should know if there's a water factory!

Well it sounds like you two have had a most interesting adventure. Come along with me, and I'll take you to the "Water factory."

Well here we are!

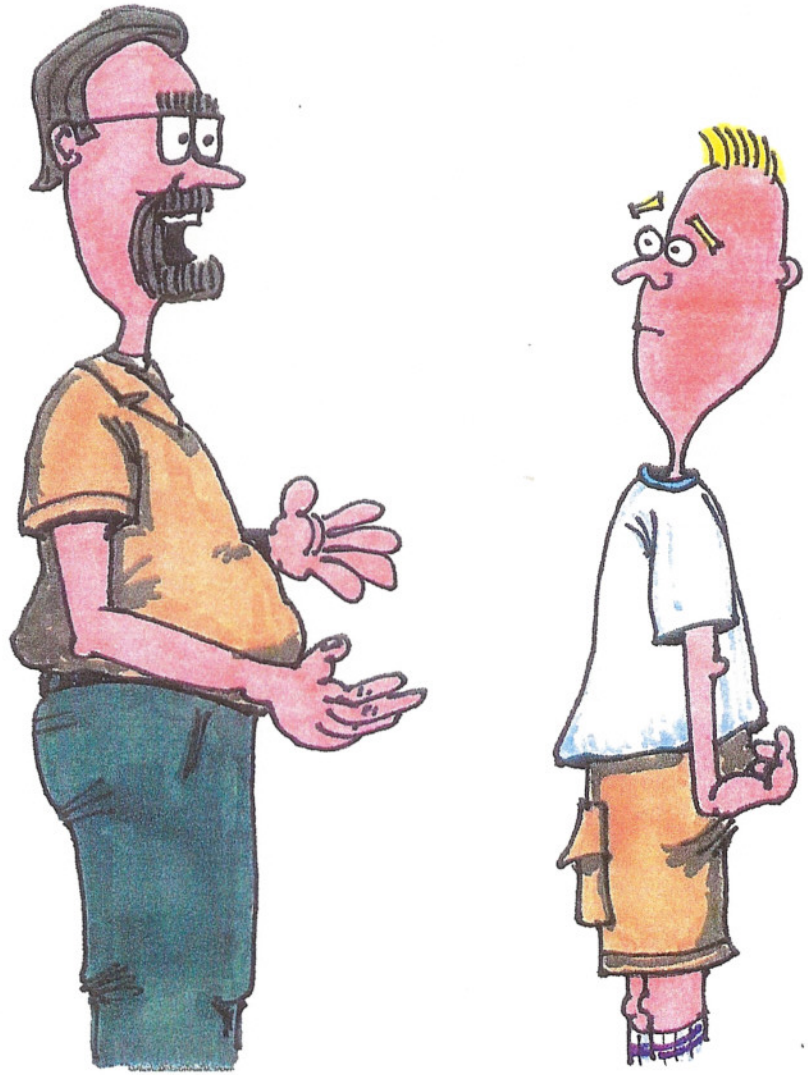
But where's the water factory?

Let me explain. All water is used water. Water flows from the rivers into the Oceans where it evaporates, forms clouds and makes rain. The rain runsoff and returns to the ocean to complete the cycle.



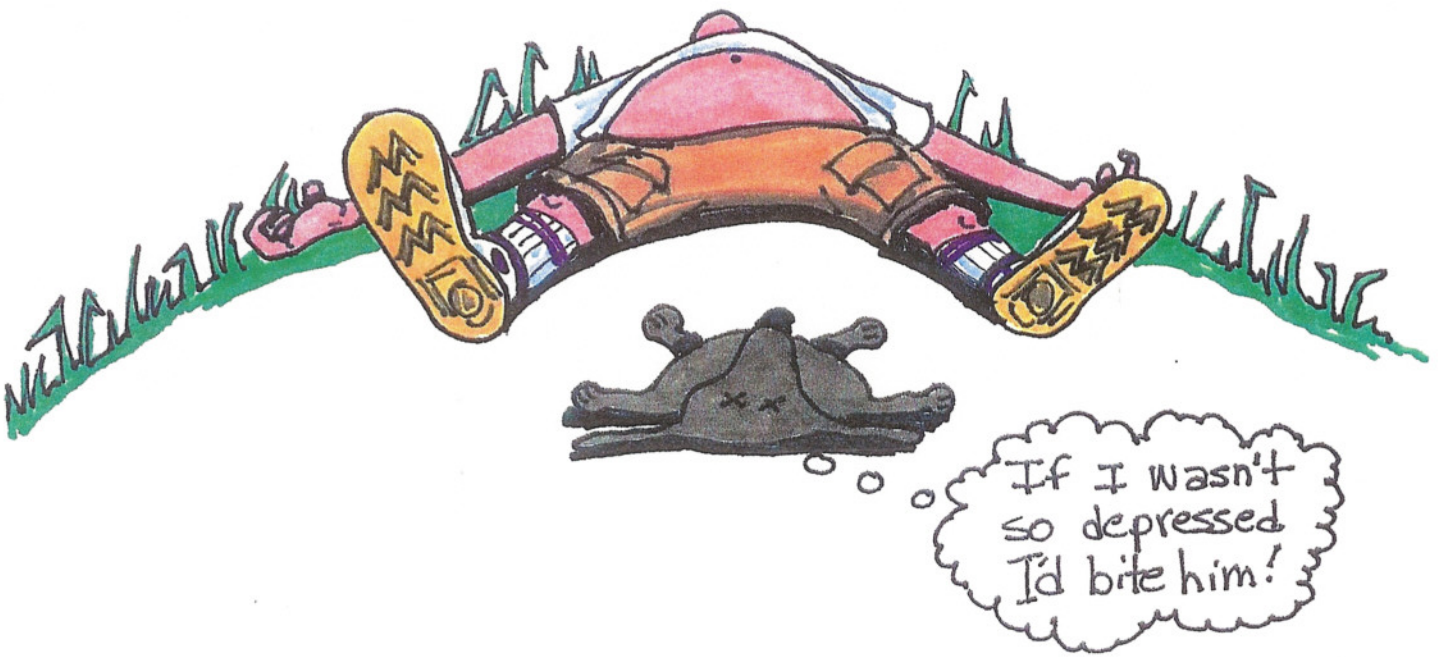
The thing you have to understand is that all the water that ever was, or ever will be, has been here since the earth was formed.

We can't <u>make</u> new water.



All water is used water. You probably never had a glass that did not go through seven native Americans, twelve settlers and fifty buffalo before you got it.

I can't believe this!



It looks like I'm going to have to do some explaining.

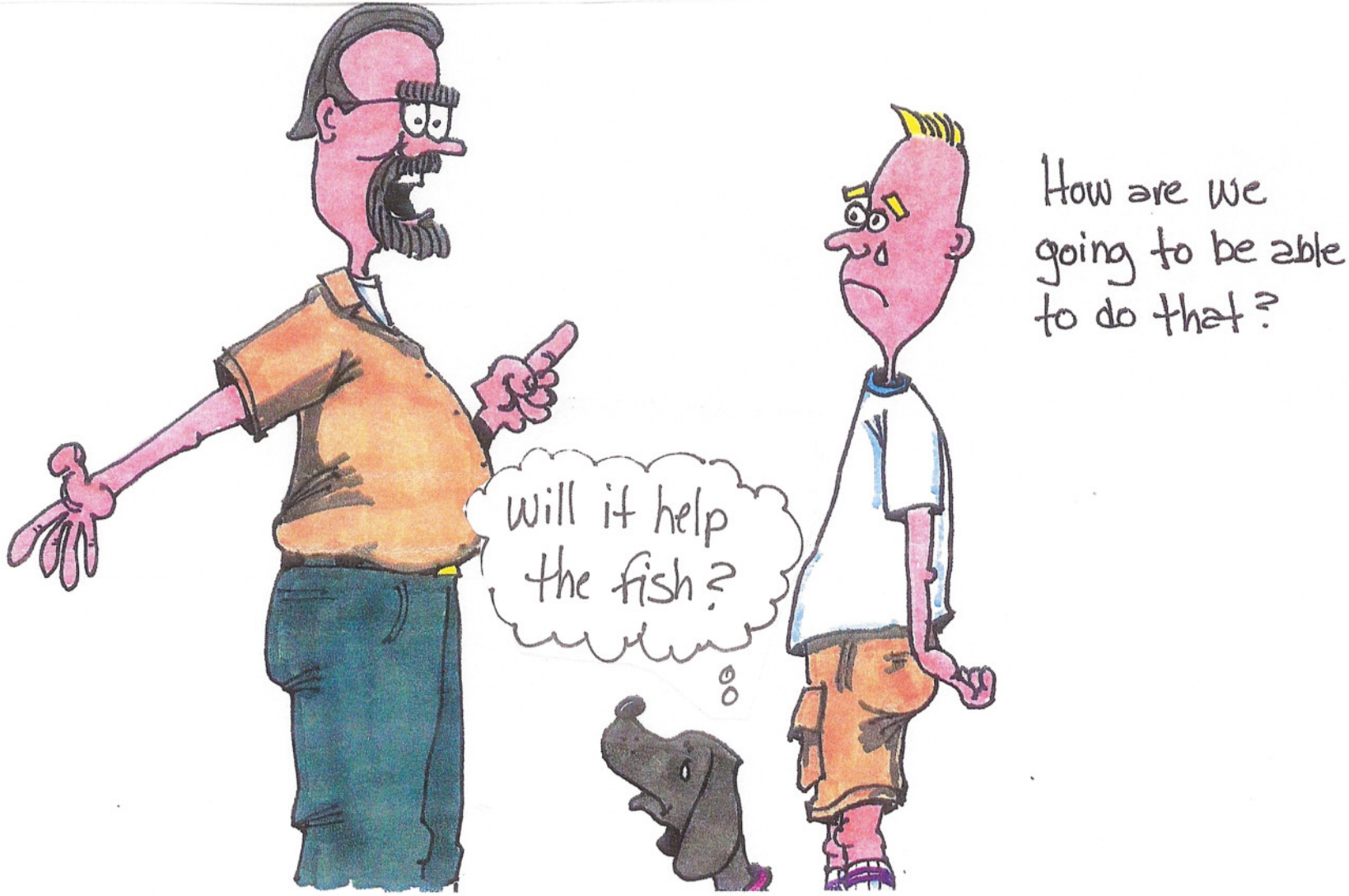
People need water. Crops need water.
We need to manage water so both needs are met.

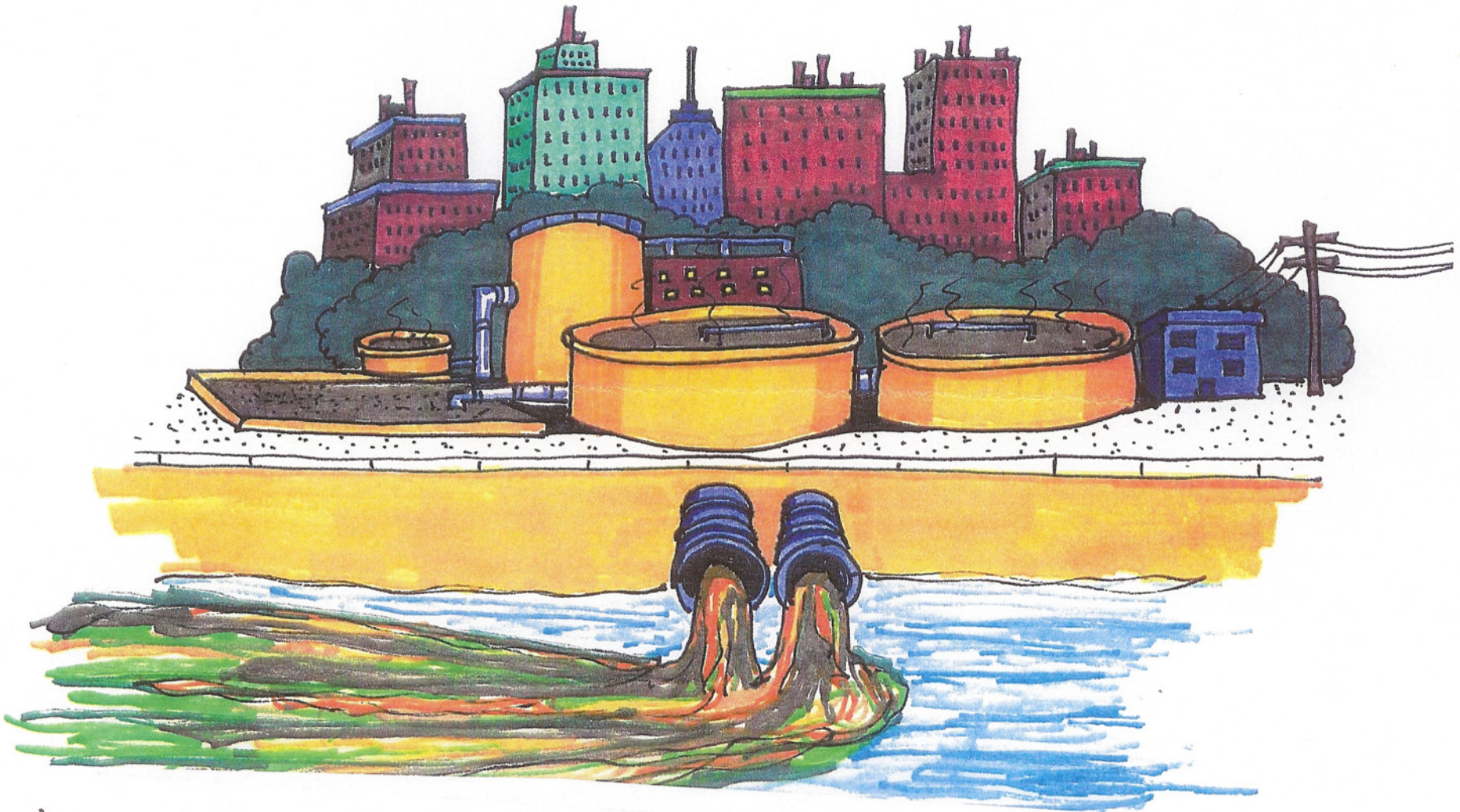
Since we use water to carry away our potty, it is full of bacteria and nutrients.

2 You don't want that dirty, filthy water to stay in your house, so we collect all the used water and bring it back to a "sanitery district." The districts treat it for a short time and then dump it into our creeks, rivers, and oceans, where it causes water pollution.

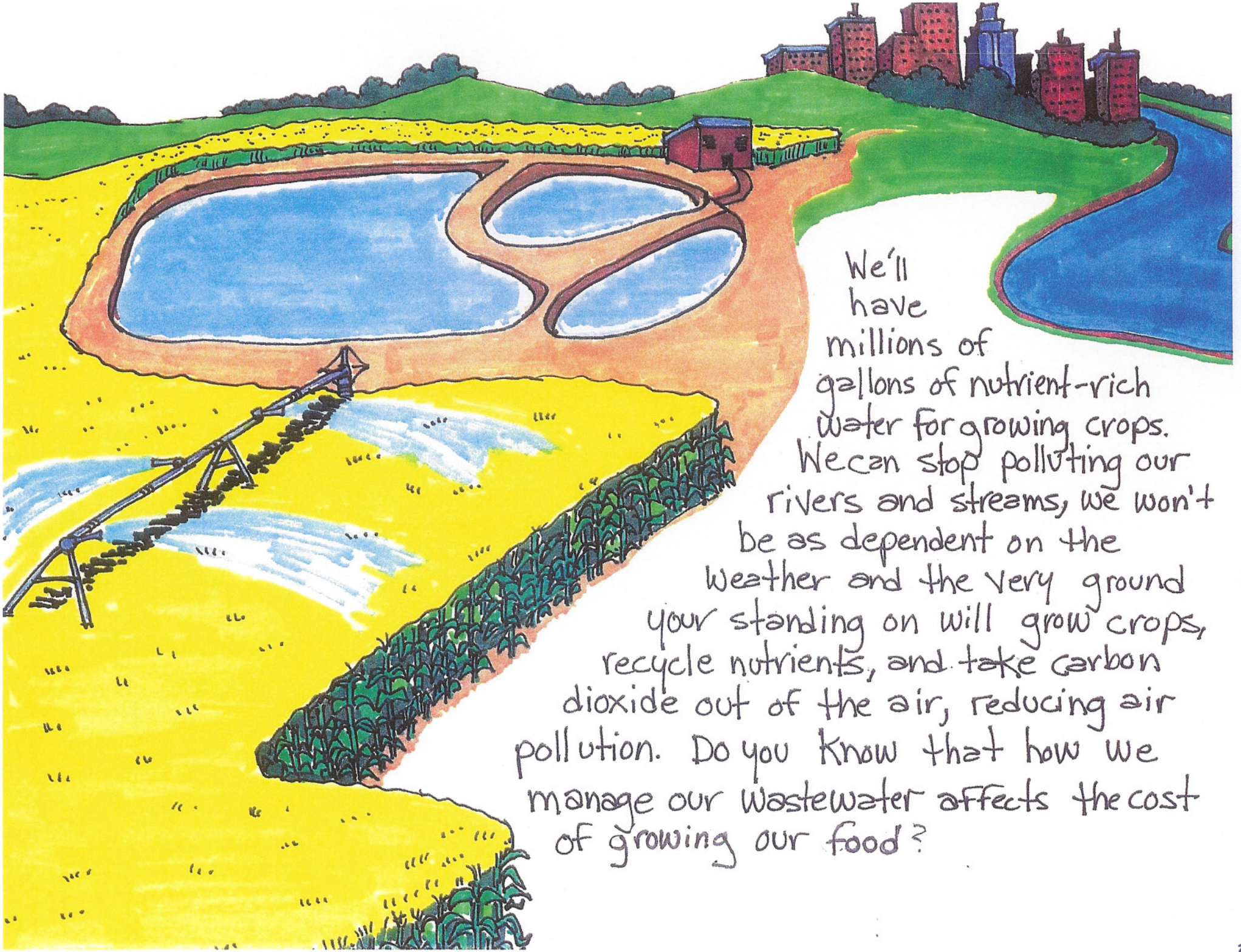
Multiple use of water is necessary. First as drinking water, than for cooling water, than to fertilize and irrigate crops and keeps the water where we live.

Since there is no new water.
We must manage our water.





We need to recycle the nutrients that are in our wastewater to grow crops. When they are in the water they are pollutants. On the land they are resources.



We'll have millions of gallons of nutrient-rich water for growing crops. We can stop polluting our rivers and streams, we won't be as dependent on the weather and the very ground your standing on will grow crops, recycle nutrients, and take carbon dioxide out of the air, reducing air pollution. Do you know that how we manage our wastewater affects the cost of growing our food?

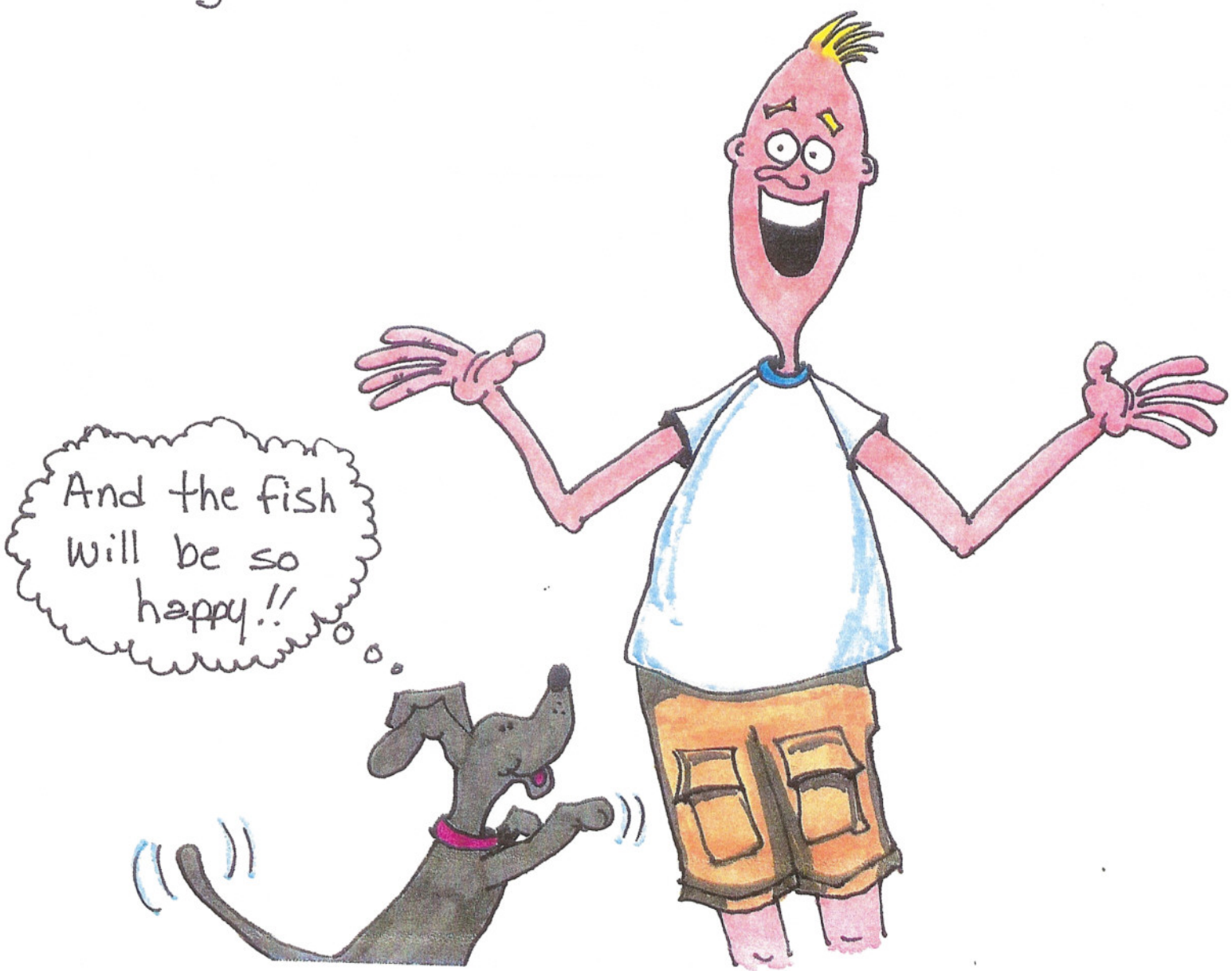
What's most amazing, is that all we need to accomplish this, is a little time and air!

We do have plenty of time and air!

Let's say we don't stop there, let's convert corn into ethanol and animal feed! We can reduce our dependence on imported oil!

So you see there really is a water factory! It not only reclaims and reuses our wastewater, it conserves energy by recycling nutrients, and it cleans the air by taking out carbon dioxide and will help reduce global warming!!

Then farmers and cities won't have to fight over water. They can reclaim and reuse it while we recycle nitrogen and phosphorus, the things plants need to grow!



It's up to you! Let's get moving to make it happen!

It is the national goal that the discharge of pollutants into the navigable waters be eliminated.'