What Is Water Worth?

A Reading A–Z Level Z Leveled Book
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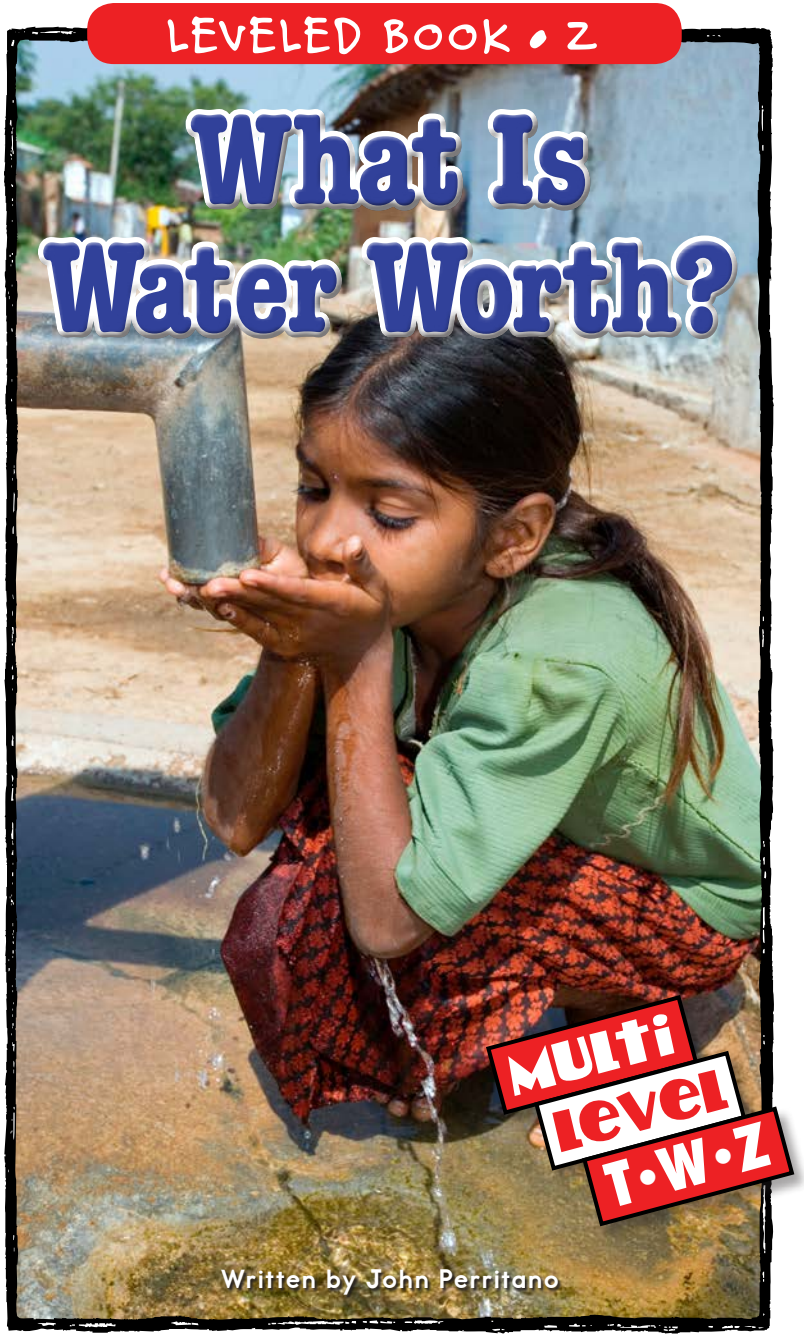
What Is Water Worth?



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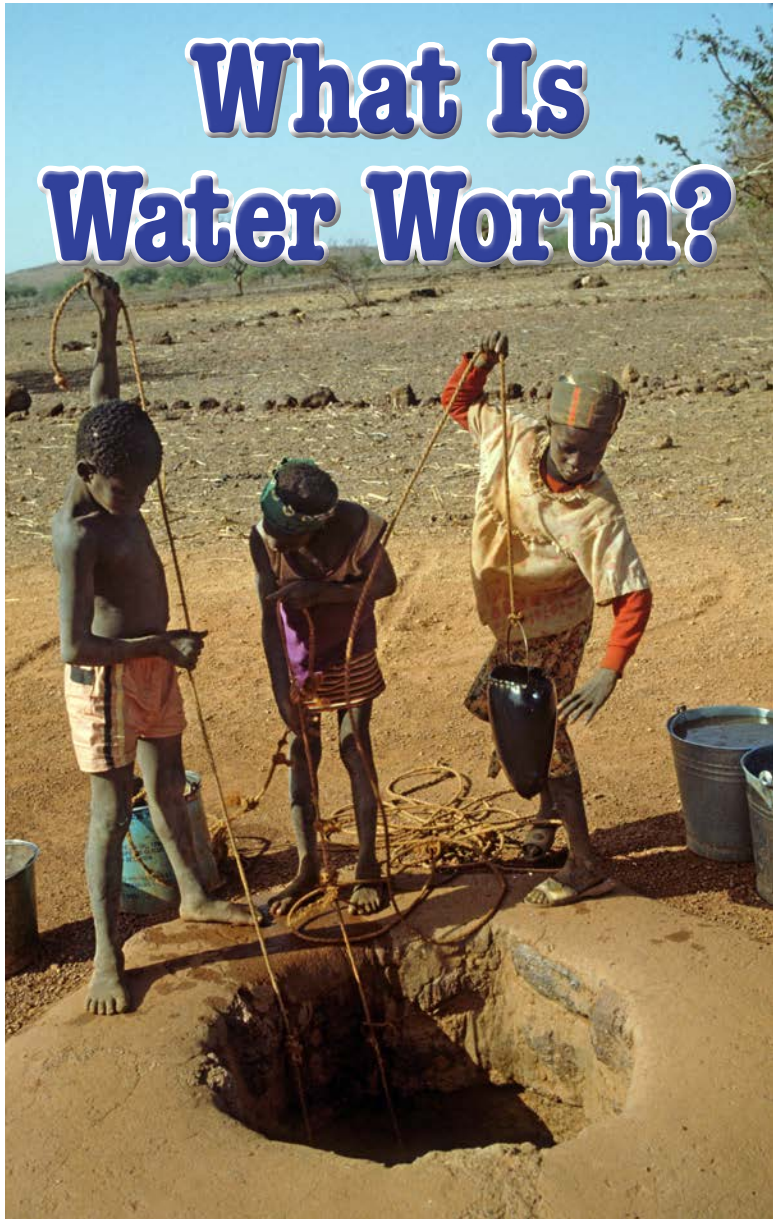

Written by John Perritano

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Correlation

LEVEL Z	
Fountas & Pinnell	U–V
Reading Recovery	N/A
DRA	50

Table of Contents

A summer rain can mean fun in many places. In others, it can mean survival.

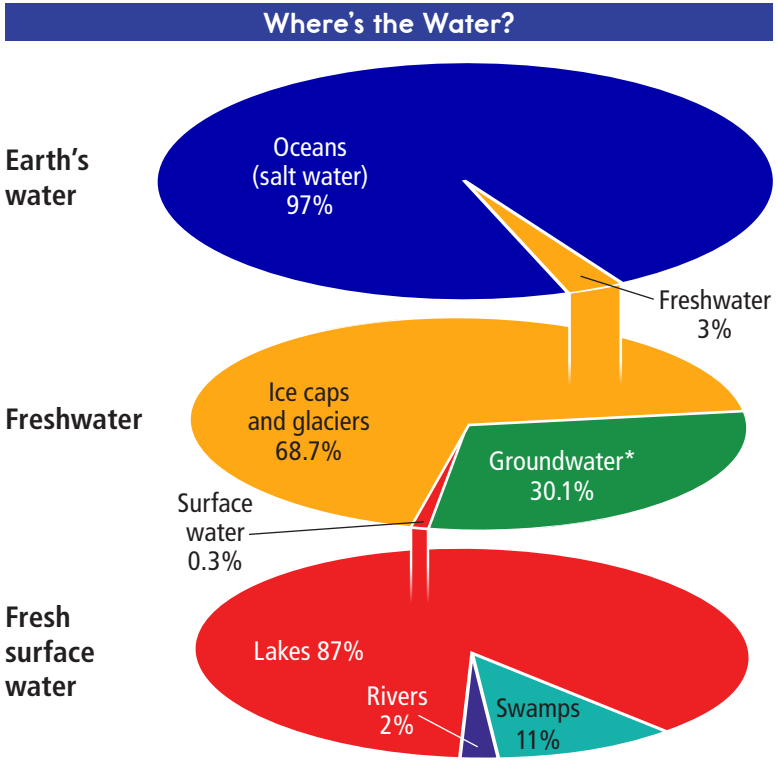
Water, Water Everywhere

Many of us around the world take water for granted. Why shouldn't we, when water is all around? It comes out of our faucets and collects in puddles on the sidewalk when it rains. Lakes and rivers brim with water. We buy water in bottles and slurp it from drinking fountains.

In fact, if we had a glass as big as the United States and filled it with every drop of water on the planet, the glass would have to be 145 kilometers (90 mi.) tall to hold it all. With so much water, you'd think everyone would have enough to drink. Not so!

A Drop in the Bucket

Water is fast becoming more precious than gold or oil. The planet simply does not have enough usable water to go around. For one thing, most of Earth's water is salt water, which we can't drink or use to water our crops. Only about 3 percent of Earth's water is fresh, and most of that is locked away in polar ice caps, glaciers, or underground layers of rock called *aquifers*.



*Groundwater provides 25% to 40% of the world's drinking water. It provides even more water for growing food. However, groundwater supplies are shrinking.

In India, young girls collect water from a hole dug in the ground.

Moreover, water is not equally **distributed** around the world. Some countries have more water than others, but most have enough water to meet people's needs. What they don't always have is the means to make that water available to people. Rich, developed countries can tap into hard-to-reach sources of water much more easily than poor, less-developed countries, where people often don't have enough money to dig wells or build dams to create reservoirs.

Today, we can only reach and use 1 percent of Earth's **freshwater**. That 1 percent is under stress owing to three underlying problems: **pollution**, increased demand driven by the world's ever-increasing **population**, and **climate change**.

Pollution's Impact

Water pollution is a problem on many continents. South America's Amazon rainforest includes 7 million square kilometers (2.7 million sq. mi.) and is home to about 10 million people and more than 30,000 plant species. For decades, people have been dumping untreated human waste and toxic chemicals into the Amazon River. These poisons are slowly destroying the jungle's fragile **ecosystem**.

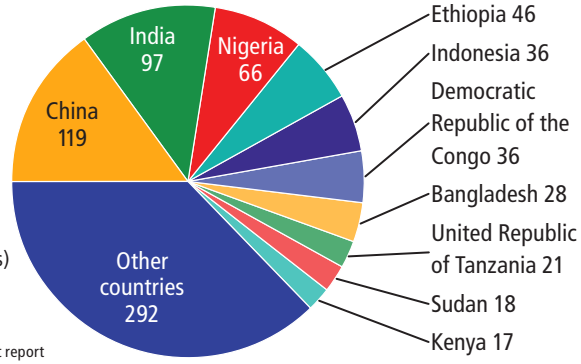
In other poor areas where freshwater often goes untreated, disease-carrying organisms grow and make people sick in other ways. Because people lack running water, they dump human waste outside their houses. That bacteria-laden waste then flows into rivers and streams. People use the water in these toxic waterways for drinking, cooking, and bathing. According to the United Nations Development Program, half the world's hospital beds contain patients sick from waterborne illnesses.

A girl sick from unclean water gets help in Haiti.

Where the Water Isn't Safe

Around the globe, millions of people lack access to safe drinking water—783 million in all.

(all numbers in millions)



Source: UNICEF/UN 2012 joint report

In Haiti, the poorest country in the Western Hemisphere, seven out of ten people do not have clean water to drink. Each year, waterborne illnesses cause more than half the deaths in Haiti. A massive earthquake in 2010 damaged wells and water pipes there, making clean water even scarcer. Many children and adults must walk miles to find clean water to drink.

Halfway around the world in Bangladesh, city dwellers use the country's rivers as open sewers, dumping chemicals, medical waste, human waste, and other trash into the water. In the capital of Dhaka, millions drink putrid water from the Buriganga. The water is so polluted that all the fish have died.

Do You Know?

Worldwide, more people have a mobile phone than a toilet.

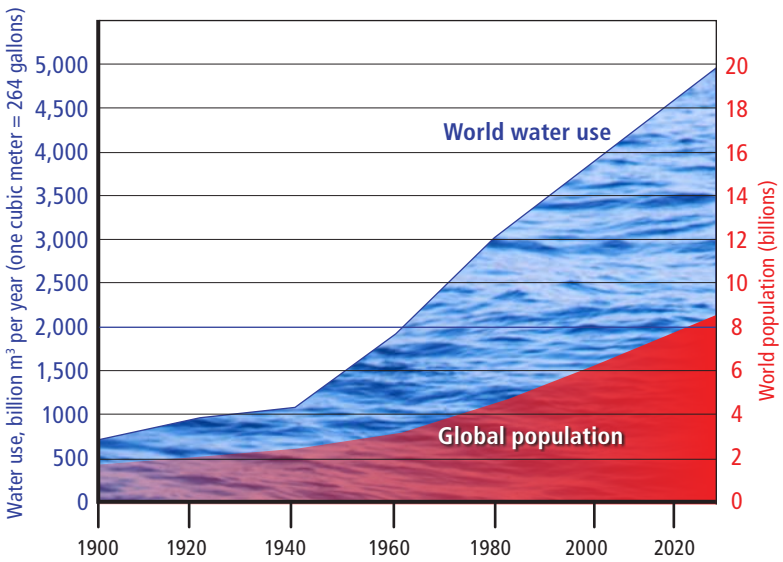
Population's Impact

In 2011, humans hit a milestone. On October 30, a baby girl was born in the Philippines: the world's 7 billionth person. By the time she turns 40, experts say that 9 billion people will be walking the planet, each looking for food, energy, land, and water.

Growing populations reduce the amount of water available for each person. Fifty years ago, the 2.5 billion people on Earth only used a third of the freshwater that we use today. Many people thought of water as an unlimited resource. Today, research shows that more than 1.1 billion people—1 in every 6 people in the world—don't have enough clean water to drink. They live on less than 8 liters (2 gal.) a day. Experts say that by 2035, 3.6 billion people will be living in areas where water is scarce.

In Bangladesh, water pollution is caused in part by poverty and in part by overpopulation. Yet its population is expected to balloon to 200 million by 2050—more than 50 million more people than the country holds now. Wealthy countries are far less likely to face polluted drinking water because they often have the means to **purify** their water and dispose of human waste properly. However, population growth in a wealthy country can lead to water shortages, too. One reason is that people in wealthy countries consume more water.

Big Population = Big Water Demand



In the United States, a four-person family, on average, uses 1,514 liters (400 gal.) of water a day, or roughly 379 liters (100 gal.) per person. This level of use would be **sustainable** if only a few people were using the water. Instead, more and more people rely on limited water sources. For example, the Los Angeles region's population is expected to reach 41 million by 2020. Yet the area can only support 1 million people on its own water. So what does Los Angeles do?

Los Angeles—and many other cities in the western United States—pull their water from distant rivers. Pulling water is expensive, and there is no longer enough river water to go around.

The Impact of Climate Change

Many scientists think climate change is already affecting people around the world by producing extreme weather conditions such as storms and floods. Yet the threat that climate change poses to the global water supply may be the worst threat of all. Scientists predict that by 2050, one-fifth of the world's population may face severe water shortages as a result of climate change.

Climate change occurs as a result of too much **carbon dioxide** and other greenhouse gases in the atmosphere. These gases, produced in large part by the burning of **fossil fuels**, trap the Sun's heat close to Earth's surface, much like a greenhouse. The result is an overall increase in Earth's temperature. That warming, in turn, leads to climate change.

The warmer temperatures disrupt the water cycle, which is a delicate balance between evaporation and precipitation. Warmer temperatures increase the rate of evaporation of surface water into the atmosphere, affecting different parts of the world in different ways. Increased evaporation might dry out some areas while producing excess precipitation in others.

Droughts are long periods of abnormally low precipitation that result in a shortage of water. Regions at the highest risk of drought include the Mediterranean and the Middle East. In the United States, most scientists say that climate change is responsible for an extreme drought in the Southwest and California.

The drought in the Southwest has been causing problems in the region since 1999. The water level of Lake Mead, on the border between Nevada and Arizona, has dropped 37 meters (120 ft.) in that time. The lake, which is fed by the Colorado River, is a source of freshwater for 22 million people. If rains don't increase soon, odds are good that desert residents will have to start **rationing** water.

A River Runs Dry

More than 30 million people depend on the Colorado River. It now trickles to an end before it can reach the sea.

Scientists say climate change is also responsible for the melting of glaciers high in the Himalayan Mountains. The glaciers help provide freshwater for 1.5 billion people living in India, Pakistan, and six other Asian countries.

In the past, the melting glaciers slowly released water into the tributaries of the Indus, Ganges, and Brahmaputra Rivers. Now the rapid melting of the glaciers is depleting the water supply. At the same time, the increased glacial melt has caused severe flooding along each of the three rivers.

As climate change worsens, less water is available for producing energy, raising livestock, and growing crops. Wildlife and natural ecosystems suffer. Arguments break out between cities, states, and even countries over who has the best claim to water.

Tensions over water are growing between India and at least two of its neighbors, Pakistan and China. All three are racing to build dams on headwaters in the Himalayas that feed important rivers below. Meanwhile, some countries in Africa argue over who has the best claim on the Nile River. In the Middle East—one of the driest areas on Earth—some experts predict that the next war will be over water.

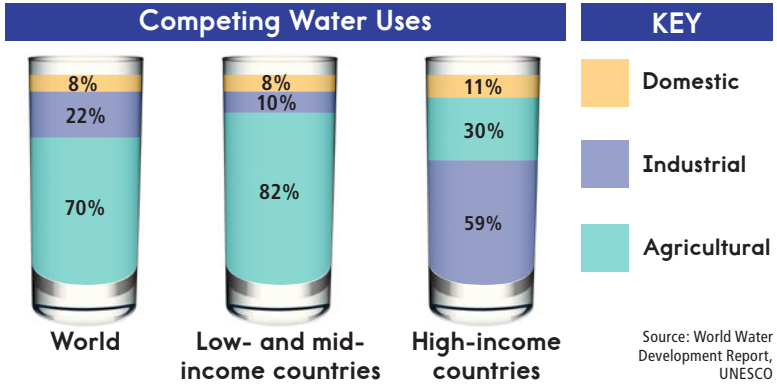
Solving the Problem

So what can we do?

Individual efforts to **conserve** water can have an impact. States can conserve, too. In 2013, faced with California's driest year on record, the governor called for a 20 percent voluntary reduction in water usage.

What Can You Do?

- Turn off the water when brushing your teeth.
- Take shorter showers (or take baths if you like to linger).
- Turn off the hose when washing the family car.
- Buy a rain barrel to store water for plants.
- Fix leaks and drips.
- Eat less meat (on average, beef requires 125 times more water than the same amount of potatoes).
- When you can, buy used or recycled stuff instead of new stuff.



Countries need to help find solutions, too. Workers in Saudi Arabia are converting salt water to freshwater in a process called *desalination*. The process is expensive, though, and many countries cannot afford to build desalination plants.

The island nation of Singapore is purifying wastewater that comes from washing dishes, flushing toilets, and taking baths and showers. Some other countries do this, too, but Singapore obtains one-third of its water this way.

Agriculture uses around 70 percent of the world's water, but some farmers and ranchers are finding ways to use less. The water saved could instead be used by rapidly growing cities.

Solving the planet's water problem is complicated. Still, we all need to find ways to conserve this valuable resource, not just for our generation, but for the ones yet to come.

Glossary

carbon dioxide *(n.)* an invisible gas that is often formed by the burning of fossil fuels (p. 11)

climate change *(n.)* the long-term, lasting changes in Earth's weather patterns (p. 6)

conserve *(v.)* to protect a natural place or resource so it will last longer (p. 14)

distributed *(v.)* spread or scattered over an area (p. 6)

ecosystem *(n.)* a community of living things together with their habitat (p. 7)

fossil fuels *(n.)* energy sources, such as coal, oil, and natural gas, that are taken from the ground (p. 11)

freshwater *(n.)* water that is not salty (p. 6)

pollution *(n.)* the act or result of putting harmful substances into the air, water, or soil (p. 6)

population *(n.)* all the members of one species in a particular area (p. 6)

purify *(v.)* to cleanse; to remove all dirt and bad things (p. 9)

rationing *(v.)* controlling the portioning of goods during periods of short supply (p. 12)

sustainable *(adj.)* able to be used in a way that does not completely use up a resource (p. 10)