## What Is Water Worth?

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## LEVELED BOOK • T **What Is Water Worth?**

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Page 3: Tadpoles race against time as their rock puddle shrinks.

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Russia's Lake Baikal is the deepest and oldest freshwater lake in the world.

### Water, Water Everywhere

Many of us around the world don't think about water very often. Why should 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 are full of water. We buy water in bottles and sip it from 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 for everyone. 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. Most of that is locked away in polar ice caps, **glaciers**, or underground layers of rock.



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



Even though the region is water-starved, the people of Saudi Arabia can access water because it is a high-income country.

Some countries have more **fresh water** than others, but most have enough water to meet people's needs. However, they can't always make that water available to people. Highincome countries can tap into hard-to-reach sources of water. In low-income countries, people often don't have enough money to dig wells or build dams.

Today, we humans can only use 1 percent of Earth's fresh water. That 1 percent is in such short supply for three main reasons: **pollution**, **population**, and **climate change**.



Many forms of waste pollute the Amazon River in Brazil.

#### **Pollution's Impact**

Water pollution is a huge problem on many continents. In South America, people have been dumping harmful chemicals into the Amazon River for years. Drilling for oil and mining for gold have poisoned some parts of the river and surrounding forest.

In other low-income areas where fresh water often goes untreated, pollution makes people sick in other ways. Because people lack access to running water or indoor plumbing, human waste ends up outside. Filled with bacteria, that waste then flows into rivers and streams. People use the water in these polluted waterways for drinking, cooking, and bathing. Research shows that half the world's hospital beds contain patients sick from drinking unclean water. **Do You Know?** Worldwide, more people have a mobile phone than a toilet.

High-income countries such as the United States, where most people have access to clean drinking water, experience other challenges with pollution. The most common water pollution comes from farming. Every time it rains, chemicals and animal waste from farming are washed into waterways. An aging sewage treatment system, oil, and other kinds of pollution all threaten U.S. waters as well.



A resident of Pennsylvania shows a jug of polluted water to an official in Washington, D.C., in 2014. He and other residents wanted fracking for oil and gas on nearby land to stop.

#### **Population's Impact**

On October 30, 2011, a baby girl was born in the Philippines. She was the world's 7 billionth person. By 2050, experts say that 9.7 billion people will be walking the planet. Each will be looking for food, energy, land, and water.

Growing populations limit the amount of water for each person. Research shows that today, 1 in 9 people lack safe water to drink. Many live on less than 8 liters (2 gal.) a day. By 2050, more than half of the world's people will be living in areas where water is **scarce**.



Compare daily water use between Americans (above) and many people around the world (bottom).



Even high-income countries can face water shortages, in part because people in highincome countries use more water. In the United States, a four-person family, on average, uses 1,514 liters (400 gal.) of water a day. That's about 379 liters (100 gal.) per person.

This level of use could last if only a few people were using the water. Instead, more and more people rely on limited water sources. For example, the Los Angeles County population is expected to reach 13 million by 2050. Yet the rivers they pull their water from carry less water than they used to.

#### The Impact of Climate Change

Climate change threatens the global water supply. Scientists predict that by 2050, more than 5 billion people may face serious water shortages as a result of climate change.

Climate change results from 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.

As Earth warms, the weather in different parts of the world is changing. Unusual amounts of rain and snow can fall in some areas, causing floods. Dry areas can become much drier.

A *drought* is a long period of lower-thannormal rain or snow that results 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. States such as Nevada and Arizona rely on the shrinking Colorado River, a source of fresh water for 25 million people. If rains don't increase soon, odds are good that desert residents will be forced to use less water in their daily lives.



A River Runs Dry Nearly 40 million people depend on the Colorado River. It now trickles to an end before it can reach the sea.



A boy fishes in the Daning River, one of many rivers fed by the Himalayas.

Climate change is also causing glaciers high in the Himalaya mountains to melt. The glaciers help provide fresh water 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 rivers below. Now the glaciers are melting rapidly, and the long-term water supply is shrinking. At the same time, the increased melting has caused severe flooding along these rivers.

As the climate changes, less water is available in many countries for ranching, growing crops, and producing energy. Nature and wildlife suffer. Arguments break out between cities, states, and even countries.

#### Solving the Problem

So what can we do? Each person's efforts to save water can help.

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



- Turn off the water when brushing your teeth.
- 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).
- Take shorter showers (or take baths if you like to linger).
- When you can, buy used or recycled stuff instead of new stuff.
- To help stop climate change, ride your bike, walk, or use public transit.



The people of Singapore are seeing if they can clean their wastewater. They're trying to reuse water 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.

While cities are growing rapidly, agriculture uses about 70 percent of the world's fresh water. Should some of that water go to cities instead?

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

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Glossary		
	climate change (n.)	the long-term, lasting changes in Earth's weather patterns or the weather patterns of a region (p. 6)
	conserve (v.)	to protect a natural place or resource so it will last longer (p. 15)
	fossil fuels (n.)	energy sources, such as coal, oil, and natural gas, that are taken from the ground (p. 11)
	fresh water (n.)	water that is not salty (p. 6)
	glaciers (n.)	large bodies of accumulated ice and compacted snow that are found year-round and that slowly move downhill (p. 5)
	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)
	resource (n.)	a supply of something valuable or very useful (p. 15)
	scarce (adj.)	rare; present in small amounts (p. 9)

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