

Turkey in Turmoil • Good-for-You Vacations

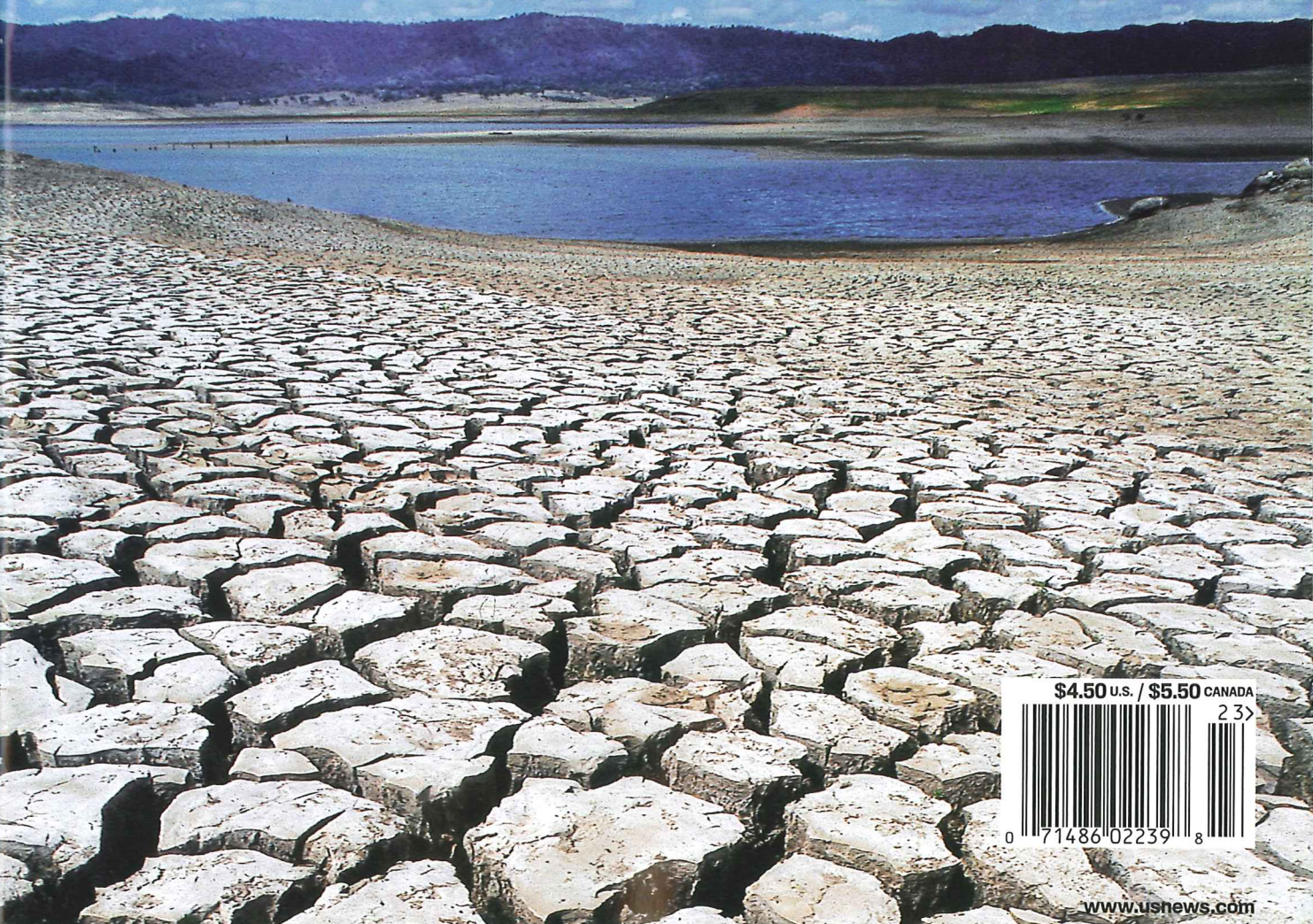
# U.S. News & WORLD REPORT

JUNE 4, 2007

## Why You Should Worry About

# WATER

How this diminishing resource will determine the future of where and how we live



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Indians catch water from a tanker truck hose.

# Water Woes

It's a special commodity everyone takes for granted. But supply is shrinking, pipes are aging, and few are willing to pay the price

By Marianne Lavelle

**T**he nation's hidden water problem rushed into the basement apartments of 51st Street in West New York, N.J., last February 9, shortly after 4 a.m. That's when a 2-foot-wide pipe ruptured under Bergenline Avenue, New Jersey's longest commercial thoroughfare. Water burst through the asphalt with the force of a geyser, then cascaded downhill. "It came down the street like rapids," says Anthony Avillo, the deputy fire chief on the scene. Families were awakened by water cresting over the sides of their beds or by neighbors screaming. In the 18-degree cold, North Hudson Regional Fire and Rescue crew members lowered themselves chest-deep into the drink and deployed life rafts to help peo-

## Cover Story

ple escape. "We had one woman holding a baby and offering it up from the water like Moses," Avillo recalls.

Miraculously, no one was seriously hurt in the deluge, but 31 people, including 14 children, were forced from their homes—some for almost a month. And as

is often the case with a major water-main break, the impact rippled far beyond the uprooted families. Water service abruptly stopped for 200,000 people in five of the nation's most densely populated towns, directly across the Hudson River from Manhattan. Even when taps began to flow again, residents were warned to boil water because a main break can be a gateway for harmful bacteria. "It was really a nightmare, and it was dangerous," says Christopher Irizarry, chief executive

of the North Hudson Community Action Corp., which assisted the stranded residents. The worst fear was that a fire would break out, because hydrants were dry. Water tankers were called in from miles away to stand by.

For the North Jersey communities, the crisis was over in 60 hours, when the break was repaired and the water deemed safe. But those who've examined the state of water around the nation and the globe say the crisis is only beginning. Mismanagement and climate change are shrinking clean water supplies worldwide. The brunt of the problem is borne by the poor on every continent; those who have the resources, like denizens of that flashy desert capital of conspicuous wealth, Las Vegas, grab all the water they can find. In less arid regions, Americans take tap water for granted, but that's only because of hundreds of thousands of miles of underground pipe laid generations ago, much of it now decaying.

Studies by government and utilities agree that cities and towns will need to spend \$250 billion to \$500 billion more over the next 20 years to maintain the drinking water and waste-water systems we equate with modern living. The only debate is how to pay for it, in a country accustomed to paying about \$2.50 per 1,000 gallons—the lowest price for tap water in the developed world.

"There's a very widespread perception that water is a free good," says Steve Maxwell, a Boulder, Colo., consultant specializing in water and environmental issues. "It falls out of the sky—why should we pay for it? What's lost is the fact that we have to treat it,



**AFTERMATH.** A ruptured main under this street in West New York, N.J., displaced families and stopped

move it around, store it, and distribute it to homes in a process that costs a heck of a lot of money."

**Omen.** Maxwell is among those who believe it will take a catastrophic infrastructure failure causing widespread illness or death to spur action. Fortunately, that did not occur in West New York, but the break was a warning sign. The pipes most vulnerable to frigid temperatures are those that are deteriorating because they are nearing the end of their useful lives. Rich Henning,

spokesman for system operator United Water New Jersey, says some pipes in that area are 70 to 80 years old, and although many are in good working order, "this happened to be one where it was its time to go."

The American Water Works Association, the trade group for the nation's drinking water utilities, estimates that there are 250,000 to 300,000 main breaks per year, and the numbers are increasing as the infrastructure ages. United Water—one of a handful of private

## High-Tech, Easy Ways to Conserve

**M**ost of us have probably been told to turn off the faucet while brushing our teeth or to take shorter showers to conserve water. But new technologies take water efficiency to unprecedented levels, allowing households to save both water and money. John Koeller, technical adviser at the California Urban Water Conservation Council and the Alliance for Water Efficiency, gave Matthew Shulman of *U.S. News* some

tips on how to conserve.

**What new technologies are available to conserve water in the bathroom?**

Toilet fixtures . . . can yield significant water reduction through new high-efficiency toilets that flush with 1.3 gallons or less. The current standard in the U.S. is 1.6 gallons maximum. If you cannot afford to replace the toilet, at least replace internal parts to get rid of leaks.

Bathroom faucets need aerators that [limit the flow

to] a gallon per minute or less. It's still sufficient to shave and wash your hands, but you really don't need the kind of flows that existed maybe 15 or 20 years ago in older homes.

Install a low-flow shower head. Whereas the trend these days in the luxury homes seems to be high-flow shower systems with multiple heads, generally speaking, the trend on the efficient side is to come down to 2 to 2.5 gallons a



Smart controllers for lawn watering

minute on the shower head.

**Let's move to the kitchen.** People are using their dishwashers less and less and less. Why is that? Because



water service to 200,000 people.

promotes the idea of what it calls “full-cost pricing” as one of its “four pillars” of sustainable water systems, along with conservation, better management, and cooperation among communities in the same watershed. Says Benjamin Grumbles, EPA assistant administrator for water, “The more people understand the true value of water as the lifeblood of the community, and the value of infrastructure as the organs and bones that help support the system, the more they’ll realize prices need to reflect that.”

**Pillow talk.** Ken Kirk, executive director of the National Association of Clean Water Agencies, representing sewer systems, wryly refers to the administration’s idea as “the four pillows,” because “they’re kind of soft,” he says. Although all make sense, he says, they wouldn’t close the

funding gap. In fact, in the topsy-turvy world of water, efficiency worsens the fiscal picture. The more water consumers save, the less revenue for utilities, which charge by the gallon.

Kirk’s group is one of several pushing the concept of a federal trust fund for water, much like the one that finances the highway system through the federal gas tax. Advocates have put forth funding ideas like a surcharge on bottled water, fees on toilet paper and other “flushables,” or some other broad rev-

enue source, but it all sounds like a tax to those on Capitol Hill and is a hard sell. Federal funding for drinking water and waste-water treatment, in fact, has declined 24 percent since 2001.

Since federal largess cannot be counted on, the problem is squarely in the lap of local water systems. Some have had success. Atlanta, over the past five years, tackled a water system in crisis with a \$3.9 billion improvement program. The city doubled water rates, and voters approved a 1 percent sales tax to help turn around a system in which raw sewage spilled into waterways, and dangerous street sinkholes and advisories to boil water were a regular occurrence due to water-main breaks.

Aqua America, the largest U.S.-based private water company,

has obtained approval in some states for regular limited rate increases to address infrastructure. Chief Executive Nicholas DeBenedictis says his company is at full-cost pricing, and consumers have seen rate hikes of no more than 2.5 percent every two years. That has enabled Aqua America to ramp up its pipe-replacement program, which was so behind in the early 1990s that it would have taken 900 years to deal with aging infrastructure. Now, the company, which serves 2.8 million customers in 13 states, boasts it is able to

### A BARGAIN AT THE TAP

Americans pay less for drinking water than do the residents of other developed countries.



Source: NUS Consulting Group

companies running U.S. water systems—is a good example; although it is now a subsidiary of the French utility company Suez, serving 7 million people in 20 states, it still operates some of the same network that it laid when the company was founded in North Jersey in 1869.

A major problem, at least in the view of the Bush administration, is that utilities haven’t been charging their citizens the true cost of providing water but instead subsidize the service with other revenues. The Environmental Protection Agency



download satellite data.

people are eating out more and more and more. Dishwashers that used to be used almost once a day are now cycling only 215 times a year.

There are many machines out there that now function with less than 6 gallons. In the old days, it was perhaps as much as three times that much water.

**How about the laundry room?** Now we have clothes washers that are so efficient that when it comes time to replace your old one, you ought to purchase an Energy Star washer. Energy use generally correlates with water use. So if you look for an Energy Star machine, you’re going to see both energy and water use reduction.

**What are ways to conserve**

**water outdoors?**

First, repair the system—busted sprinkler heads, leaking pipes. Then put a good controller on. There are weather-based controllers—otherwise known as smart controllers—that operate off of either historic or current weather patterns, as opposed to a clock [for watering the lawn]. They adjust themselves to actual weather patterns and to actual plants you’re watering by downloading a signal from a satellite every day.

The carwash industry is probably more efficient at washing cars than you are at

home with a hose. So, go to a carwash.

**What will make people change their water-use habits?** We’re seeing more drought conditions and water quality problems, in states you’d never dreamed have water problems. People are thinking: What can I do to help? Water utilities [that] are aggressive are providing financial incentives for customers to change products and hopefully change their habits, too.

*More on water conservation, including a video:*  
[www.usnews.com/water](http://www.usnews.com/water)

## PURITY

Flushing  
Out Disease

For a staple of life, water sure can cause a lot of trouble. Disease-bearing microbes, like the ones responsible for cholera and typhoid, happily hitchhike in the water from one city to another, infecting thousands of people along the way. A single cholera epidemic in London in 1848 claimed 14,600 lives.

These epidemics didn't become a matter of life and death in the United States until the mid-1800s, when cities proliferated, population density spiked, and more people were connected by waterways.

"Cholera is really a 19th-century disease," says David Rosner, a professor of history and public health at Columbia University. "Before that, epidemics were located in very specific places and tended not to travel very far."

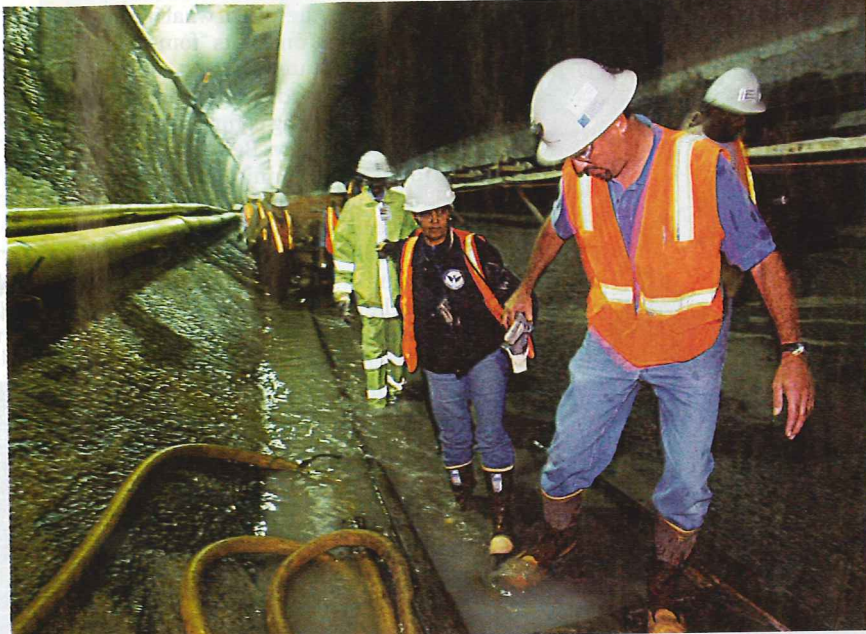
As both population and industry grew, cities that had relied on nearby rivers found their water contaminated with the sewage and chemical waste of everything upstream. At around the same time, the first

epidemiologists were rethinking how diseases like cholera spread and debunking assumptions that the plagues were airborne. In 1854, British physician John Snow famously traced an outbreak of cholera



in London's Soho district to a single water pump, lending strong evidence to the notion that water was responsible for the spread of the deadly disease.

Before the practice of chlorinating water became common in the United States in the early 20th century, many cities combated the spread of waterborne diseases by bringing in water from more remote sources and separating their water supplies. New York City drew much of its water from the Croton River in modern-day Westchester County and later began tapping the Catskills with a lengthy series of aqueducts. Federal regulations slowly caught up with state efforts to mandate cleaner water, culminating in the Safe Drinking Water Act in 1974. Outside the United States, however, limited access to potable water remains a debilitating health hazard in many developing countries. —Chris Wilson



**INVESTMENT.** Atlanta is pouring \$3.9 billion into improving its water and sewer system.

replace 1 percent of its pipes annually. It's still a daunting job, however, since full replacement would take 100 years. And Aqua America continues to suffer its share of main breaks; in fact, the cost of the ruptures held the company's profit increase below 2 percent in the last quarter even as revenues soared 16 percent.

**Risk averse.** The economics have discouraged some would-be water saviors. German utility giant RWE wants to spin off its American water business just four years after entering the market here with great fanfare. Minutes of RWE corporate board meetings show that its executives concluded they had underestimated the business risk posed by decaying infrastructure and neglect.

Still, plenty of potential investors look at the same landscape—especially the prospect of monopoly ownership—and see an opportunity. Private-equity funds have moved onto the scene, scooping up two relatively small U.S. water systems last year at high premiums. But Jack Hoffbuh, executive director of the American Water Works Association, isn't ready to identify it as a trend. "Water utilities are three to four times more capital intensive than any other utility," he says. "Once private-equity

firms look at when they'd begin to see a return on their funds, they might not be quite as interested in investment."

Meanwhile, back in New Jersey, United Water still copes with water-main breaks even though it says it has spent \$240 million in the past decade on capital improvements, including new pipelines. Now, it is trying to recoup some of those costs. Just two weeks after the West New York main break, but unrelated to the incident, United Water announced it would ask its customers to pay 28 percent more for water, its first rate hike in a dozen years. Although that would add only \$95 a year to the average bill, it will be a blow to the many poor residents in its service area.

In other words, it may make sense to pay more for water, but it still feels unfair to those who must buy this essential service, whatever the price. Water consultant Maxwell says the challenge is being faced worldwide. "How do we treat water more and more as an economic commodity—just like copper or oil or aluminum—and make rational economic decisions about it on the one hand," he says, "and on the other hand, accept that it's a fundamental human right and everybody has to have it to exist?" ●

The United States has **52,837**  
water systems. More than half of  
them serve **500** or fewer people.