



DR. BARBARA K. RIMER

I got my public health education at a time when the mantra was that the danger of infectious diseases was quickly fading, and

that in the future, chronic diseases would be the greatest public health threats. Yet, in North Carolina and around the world, we face old and new infectious diseases as well as chronic diseases, along with huge environmental threats. Of these threats, among the most far-reaching are those that involve water. Across North Carolina and around the world, crops that were, until recently, the heart of regional economies are withering. In developing nations, families who depended on those crops go hungry and drink from disappearing, often toxic, hard-to-reach water supplies. Here at home, farm incomes are threatened by drought-damaged crops at a time of severely tightened credit. We should not assume that there will always be safe water pouring from our faucets or available for irrigation. Recent droughts in the U.S. Southeast and floods in the Midwest show the unpredictability of water—we have both too much and too little—and as *E. coli* bacteria outbreaks have shown, our potable water supplies are vulnerable. Challenges that face us domestically may seem small when compared to the horrific challenges that confront so much of the world.

Consider the following:

- 💧 1.1 billion people lack access to an improved water supply—approximately one in six people on earth.
- 💧 2.6 billion people worldwide—more than 3 times the U.S. population—lack access to improved sanitation.
- 💧 Less than 1 percent of the world's fresh water (or about 0.007 percent of all water on earth) is readily accessible for direct human use.
- 💧 A person can live weeks without food, but only days without water.
- 💧 Millions of women and children spend several hours a day collecting water from distant, often polluted, sources.
- 💧 On average, every \$1 spent on water and sanitation frees up \$8 in costs averted and productivity gained. That's an astonishing social return on investment.

As if these figures were not sobering enough, the infrastructure that delivers clean water to those of us who have it is old, and it isn't being maintained in far too many parts of the U.S. The U.S. water infrastructure is living on borrowed time.

Changing these conditions—scarce, dangerous drinking water and endangered water infrastructure—demands another sort of infrastructure—a human, intellectual one. Our Department of Environmental Sciences and Engineering can be the heart and the brains of change, both here in North Carolina and around the world. As potentially daunting and disturbing as the picture described above may seem, we have reasons for optimism. That optimism is due to growing worldwide awareness that water is a scarce resource that must be nurtured and protected. I am optimistic because of the students, faculty and staff at the University of North Carolina at Chapel Hill, especially in our Department of Environmental Sciences and Engineering and colleagues elsewhere on campus, including the newly-formed Institute for the Environment. As you read the stories here, I hope you will emerge with new understanding of water, pride in the accomplishments of our faculty, staff and students and a commitment to take action on this issue.

Action might be intensely personal—changing our own water habits, volunteering to work with local or global organizations to clean up or maintain water systems, influencing policies to assure that water is good for all and not only those who can afford it, supporting students, staff and professors, or helping to create our new Global Water Institute. The problems discussed in this issue go to the heart of public health, the heart and safety of communities across North Carolina and around the world. How we deal with them will affect our well-being, quality of life, economies and the health of Planet Earth.

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