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NEWS

Meeting Basic Human Needs for Water Remains Huge Challenge, Expert Says

PAGES 386–387

Since the 1998 publication of the first volume of *The World's Water*, a biennial report on freshwater resources from the Pacific Institute, some significant strides have been made in improving water management and quality. However, there has also been a continuing stream of bad news about the state of water in many parts of the world. With the 18 October publication of volume 7 in the series, two stark statistics stand out to lead author Peter Gleick: More than 1 billion people still lack safe drinking water, and more than 2.5 billion lack adequate sanitation.

Those numbers have not changed much since 1998, according to Gleick, president of the Pacific Institute, a nonpartisan group based in Oakland, Calif. Though, with the world's population having increased from about 6 billion people in 1998 to about 7 billion people now, the percentage of people without access to these essentials has decreased. “An optimist would say the fraction of people provided with safe water and sanitation has gone up,” Gleick told *Eos* in an interview, noting that some progress is being made and there is a better understanding of water problems. “And if we had done nothing, those numbers [of people lacking access to clean water and sanitation] would have gone up even more,” he said.

Despite some progress, the failure to meet basic human needs for water is “frustrating and depressing,” Gleick said. “It’s inexcusable in the 21st century. It’s not that we don’t have the technology. It’s not that we don’t have the money. It’s not that we don’t know how to provide safe water and sanitation. It’s just that we have failed as a society at making [access to safe water and sanitation] a priority.”

Gleick forecast that it is also now “inevitable” that the world will fail to meet a United

Nations (UN) Millennium Development Goal to halve by 2015 the proportion of people without sustainable access to safe drinking water and basic sanitation. Achieving the safe drinking water goal would require access to improved water supply for an additional 100 million people per year—274,000 per day—until 2015, according to the UN.

“Maybe the world will get its act together and refocus efforts in the last 3 years, but we are running out of time to meet that deadline,” Gleick told *Eos*. Some countries and regions are on target to meet certain water goals, but he singled out sub-Saharan Africa as a region desperately in need of safe water and sanitation that will come “nowhere close” to meeting the goals.

He also said the world is “losing ground” on tackling water-related diseases. Data in the report from the World Health Organization show that about 1.8 million people die every year from diarrheal diseases—including cholera and dysentery—and 88% of those deaths are attributed to an unsafe water supply or inadequate sanitation and hygiene.

The report includes discussions on a number of key issues related to water, including water quality, conflicts over water, and climate change. “Global climate change is going to have very dramatic impacts on water resources because the hydrologic cycle is such a fundamental part of the climate cycle,” Gleick told *Eos*. “We know we are going to see changes in snowfall dynamics. We know we are going to see changes in extreme precipitation events. We know that higher temperatures are going to increase evaporation rates. We know that rising sea level is going to contaminate more coastal aquifers with salt water. I find the climate debate and specifically the issues around water frustrating, because the science is clear. There are plenty of uncertainties, but not everything is equally



Peter Gleick. Photo courtesy of the Woodrow Wilson International Center for Scholars. ©David Hawxhurst/Woodrow Wilson Center.

uncertain. We know more than enough, and we’ve known more than enough for decades, to act. And we’re not acting. And that’s irresponsible.”

Water Issues in the United States and China

Gleick said that while there are a number of case studies of countries and regions successfully using innovative strategies to solve their water problems in a sustainable way, “no country deals with its water issues properly.” He specifically pointed to the need for improvements in several countries, including the United States and China.

In the United States, some key federal water legislation—including the Clean Water Act and Safe Drinking Water Act, which were passed in the 1970s—is “grossly” out of date, Gleick said, and he called for Congress to update the laws. “There are new contaminants, there are new health risks, there are new water-monitoring capabilities. Congress needs to realize that water isn’t a Democratic issue; it’s not a Republican issue. It’s a national issue,” Gleick said. “Every American wants safe water. Every American wants clean rivers and lakes. They need to step

up and do what's right to protect our water resources and to make sure that they are used efficiently and carefully."

Gleick said he doesn't know whether there could be movement on this issue during this time of government gridlock. "I'm a scientist and not a politician. I know that people care about water. It's the highest-polling environmental issue consistently. I know it's still difficult to remove politics from water, but Republicans and Democrats played together very well in passing our water quality laws, and I think we can do it again. I don't know if we will, but I know that we have to."

The U.S. government, Gleick said, also has to do a better job at integrating water management strategies, responsibilities, and policies at the federal level. He noted that more than 20 federal agencies currently are responsible for dealing with different aspects of the nation's water, such as agriculture, ecosystem protection, water quality monitoring, and climate forecasting. "I'm not saying that there ought to be a department of water. But I am saying that we need to do a better job at the federal level of managing water as an integrated challenge."

The report also includes a chapter focusing on China and notes that the country is moving forward with "a new era of massive construction" of dams both in China and internationally. The chapter, which mentions some of the environmentally detrimental as well as societally beneficial aspects of large dams, states that China already has the world's largest installed hydropower capacity and that Chinese companies and financial interests were estimated to be involved in at least 220 dam projects in 50 countries in 2009.

"If China is going to be a major player on the international scene in building water-related infrastructures on rivers they share with other countries, or outside of their own borders completely, like in Africa, then I think

China has a responsibility, as does any country, in meeting basic standards for transparency, for the protection of local communities that might be displaced or affected by their dam policies, [and] in protecting the environment. China has not yet acknowledged that responsibility, in my opinion," Gleick said. "China, like much of the rest of the world, has been slow to see beyond narrow economic interests, to a broader responsibility, to the broader environmental challenges that they both cause and are facing."

An Integrated Approach

Gleick also pointed to the need to look at water issues that take a more integrated approach with other issues such as energy policy, international security, natural ecosystems, public health, and climate change. In addition, he discussed the "soft path" approach to water, which the report states "defines a new strategy for more sustainable water management and use that recognizes the limits to traditional approaches" such as "hard infrastructure that transports water over large distances or centralized water supply and wastewater treatment." Gleick added that there is a role for desalinization in the right place at the right time but that it is not a silver bullet and is an option that has environmental and economic costs.

Gleick also said that several big water data gaps need to be closed, including understanding better the basic stocks and flows of the hydrological cycle: where the water is and where it goes. He said that U.S. data collection networks are still too thin and that they do not adequately collect precipitation, evaporation, and runoff data. Gleick said another big gap is in the nation's understanding of how it uses water. A national water use assessment conducted every 5 years by the U.S. Geological Survey (USGS) is too

infrequent, in his view; in addition, he said, the assessment includes nonstandardized data collected by states. He called for more funding for USGS to conduct the assessment as well as funding for a U.S. national water census that is required under a 2009 law but that, he said, has not been adequately funded.

Despite the numerous problems and challenges related to water quality and quantity, Gleick said he is pleased to see progress in a number of different areas, including improving the efficiency of water use, developing integrated economic strategies to use water more carefully, and restoring ecosystem flows.

Another issue that provides some optimism, he said, is the UN Human Rights Council's September 2010 adoption of a legally binding resolution on the human right to water and sanitation. Gleick said the resolution "doesn't mean 'thou shalt provide X liters per person per day.' It's not that specific. But it lays out principles and guidelines for moving forward to solving water problems." Although the resolution does not establish metrics for countries to progressively meet this new right, he said its approval has shifted the debate from whether there is a right to water to the challenge of determining what the responsibilities are of countries and organizations in the context of a formal right to water.

"I'm not naive enough to think that simply declaring the human right to water means we'll solve all of our water problems quickly," he said. "But it is a tool, it is a weapon to use to meet basic human needs for water, to help meet water challenges. And I think it is a step in the right direction."

For more information, see <http://www.worldwater.org>.

—RANDY SHOWSTACK, Staff Writer

G E O P H Y S I C I S T S

Honors

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Thomas Bogdan has been selected as the next president of the University

Corporation for Atmospheric Research (UCAR), the organization announced on 18 October. Bogdan, who has served as director of the National Oceanic and Atmospheric Administration's Space Weather Prediction Center (SWPC), will take over

as head of UCAR on 9 January. Before he joined SWPC, in 2006, Bogdan was a senior scientist at the National Center for Atmospheric Research. **Richard Anthes**, who has led UCAR for 23 years, is retiring.