

Introduction

When the first volume of *The World's Water* was published, the United Nations' Millennium Development Goals had not yet been established. Today, as we finish volume 8, we are racing toward the 2015 deadline for those goals, but basic human needs for water and sanitation remain unsatisfied. Deadlines aside, if we are ever to achieve the objectives of global health and sustainability, water security is critical.

In this volume, we continue to provide data on access (by country and by urban-rural split) to water and sanitation. We also provide data on the ongoing, unchecked severe cholera outbreaks that are a direct consequence of our failure to meet basic human needs for safe water. Human-caused climate changes are also increasingly apparent, with growing evidence around the world in the form of alterations of natural hydrology and impacts on our built water infrastructure. Ecosystems that rely on freshwater continue to deteriorate in many parts of the world as human competition for water grows. And conflicts over water allocations and use are growing, not diminishing, as reflected in the Water Conflict Chronology—a regular feature of these volumes.

The World's Water, however, has always been about more than water “problems.” My colleagues and I believe strongly that there are successful and expandable solutions out there, and we try to describe and discuss them in every volume. New thinking about solutions and the “soft path for water” are both needed and available, if we look around. As a result, *The World's Water* has always tried to explore new ideas, successful case studies, and innovative communications efforts.

There is no shortage of topics to address, and as always it is a challenge to try to choose among them for inclusion in the books. In this latest volume we tackle some new topics and revisit and update some older ones.

Chapter 1 offers an overview of the complex institutions and ideas that constitute “global water governance” and offers some thoughts about how to improve and manage water systems at local, continental, and global scales while still protecting the critical needs of communities.

Chapter 2 revisits previous Pacific Institute efforts on how to engage the corporate sector in more sustainable water management, reporting, and use. Some innovative efforts are under way under the auspices of the United Nations Global Compact office and the United Nations' CEO Water Mandate, bringing new voices into the water discussion. The hope, still to be fully realized, is that responsible and sustainable corporate water management will play a role alongside the efforts of governments and nongovernmental organizations in moving toward more sustainable water policy.

The third chapter in this volume summarizes recent work completed at the Pacific Institute on water-related jobs. Jobs, in different sectors of the economy, are required to manage, deliver, and treat the freshwater required to satisfy our commercial, institutional, industrial, agricultural, and domestic needs for goods and services. In addition, growing attention is being given to sustainable measures such as low-impact development, water reuse, watershed restoration, water conservation and efficiency, and many

other proven and promising practices. As the country shifts to more sustainable water management, new services, occupations, and markets are emerging. Our research suggests that water is a worthy arena for exploring green jobs.

Chapter 4 expands on the work we presented in the previous volume focused on energy and water, especially the increasingly controversial issue of hydraulic fracturing, or “fracking.” This practice has been particularly controversial in the United States but is expanding globally, wherever unconventional natural gas development is under way. To better identify and understand the key issues, the Pacific Institute conducted extensive interviews with a diverse group of stakeholders, including representatives from state and federal agencies, academia, industry, environmental groups, and community-based organizations from across the United States. This chapter provides a short summary of the key issues identified in the interviews and an assessment and synthesis of existing research.

Chapter 5 digs into the useful concept of the “water footprint.” We use water for many purposes: drinking, bathing, washing our clothes, watering our gardens, and more. In addition to these direct uses, however, water is needed to produce nearly everything we use and consume, from the food we eat and the clothes we wear to the technological devices that are integral to our modern society. A full measure of the water footprint of an individual, industrial sector, or society is the combination of direct and indirect water needed to provide our basket of goods and services. This chapter discusses the tool of “footprinting,” how it is related to other footprint indicators, such as the carbon footprint and the ecological footprint, how it is calculated, and the findings from some recent research.

Chapter 6 returns to the issue of desalination. In this chapter, we provide a short summary of the economics of various major desalination projects and the spatial and temporal variability associated with these costs. We also describe project-related risks associated with desalination plants, and we provide two case studies of seawater desalination projects in the United States to highlight some of the issues around cost and financing of these projects.

The final chapter, chapter 7, tackles the issue of water “zombies.” As any consumer of popular culture today knows, a zombie is an undead creature, something that was killed but came back to “life” in some form to terrify, entertain, and gross people out. Zombie books, movies, costumes, makeup, computer games, and more are big business. But not all zombies are fictional, and some are potentially really dangerous—at least to our pocketbooks and environment. These include “zombie water projects,” which we define as large, costly water projects that are proposed, killed off for one reason or another, and brought back to life, even if the project itself is socially, politically, economically, or environmentally unjustified. In chapter 7 we offer—in an only partly tongue-in-cheek presentation—a description of some major zombie water projects from the past century: serious proposals for massive projects to use, divert, or transfer water that died only to come back to life in one form or another. In short, this chapter argues that modern civilization must learn that our ability to do something doesn’t mean that we actually should do it, especially in the field of large-scale geoengineering.

The chapters are supplemented with shorter In Brief reports on items of interest. The current volume includes an update on the Red Sea–Dead Sea proposals, the role of water in the current Syrian conflict, and a detailed update of our popular Water Conflict Chronology, with entries through the end of 2012. The chronology offers historical examples

of conflicts related to water going back millennia, and it is also available in a flexible and useful format online at <http://www.worldwater.org>, where readers can sort water conflicts by time, location, type of conflict, and more and see the results in active maps.

We provide in the back of volume 8 a complete table of contents and integrated index across all previous volumes, to help readers find information in the earlier editions that might be useful or relevant in their research or other efforts.

Finally, *The World's Water* again offers a wide variety of important, useful, and popular data on water in a series of data tables. In this volume we present updated data on water supply and use by country, the latest progress (or lack thereof) toward the Millennium Development Goals for water and sanitation, runoff data for the world's largest and most important rivers, irrigation data, estimates of funding for water from overseas development agencies, tables on water footprints of consumption, and more.

If there is any good news, it is that water is receiving more attention from policy makers, scientists, the media, and members of the public. Education and awareness are key steps in moving toward implementing smart and effective solutions. We are happy to think we are playing even a small role.

Special thanks to all of my coauthors, both within the Pacific Institute and outside with partner organizations. This project continues to benefit from the support of Island Press, including Emily Davis, my new(ish) editor. Thank you, Emily, for your help getting this latest volume out the door!

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