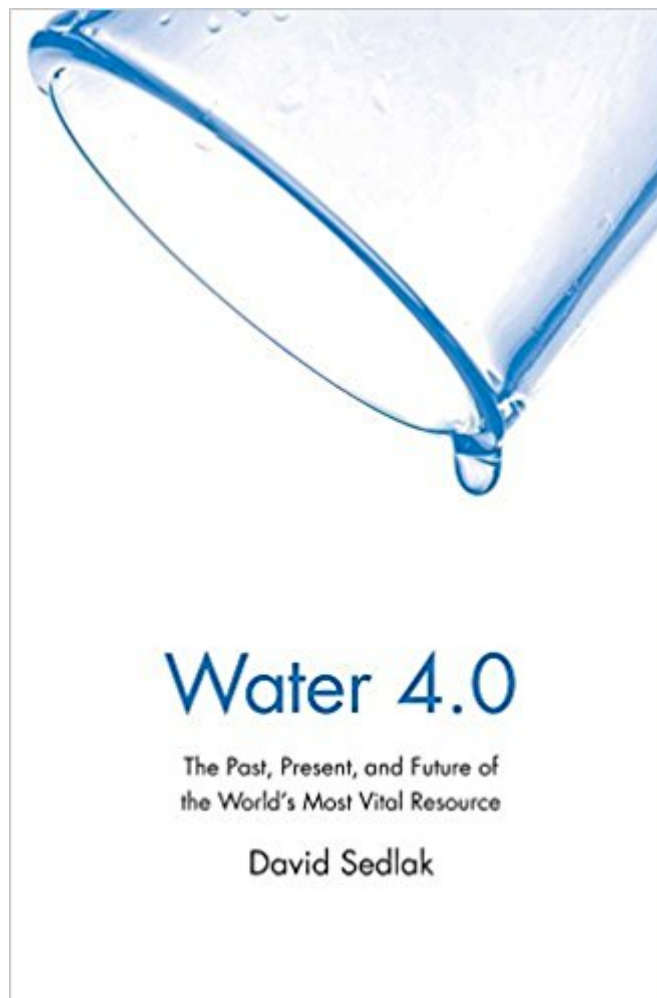




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# Water 4.0: The Past, Present, And Future Of The World's Most Vital Resource



## Synopsis

The little-known story of the systems that bring us our drinking water, how they were developed, the problems they are facing, and how they will be reinvented in the near future. Turn on the faucet, and water pours out. Pull out the drain plug, and the dirty water disappears. Most of us give little thought to the hidden systems that bring us water and take it away when we're done with it. But these underappreciated marvels of engineering face an array of challenges that cannot be solved without a fundamental change to our relationship with water, David Sedlak explains in this enlightening book. To make informed decisions about the future, we need to understand the three revolutions in urban water systems that have occurred over the past 2,500 years and the technologies that will remake the system. The author starts by describing Water 1.0, the early Roman aqueducts, fountains, and sewers that made dense urban living feasible. He then details the development of drinking water and sewage treatment systems—the second and third revolutions in urban water. He offers an insider's look at current systems that rely on reservoirs, underground pipe networks, treatment plants, and storm sewers to provide water that is safe to drink, before addressing how these water systems will have to be reinvented. For everyone who cares about reliable, clean, abundant water, this book is essential reading.

## Book Information

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## Customer Reviews

“David Sedlak offers a clear window into the past and a positive vision of the future for one of our most precious resources: drinking water. Using tools of history, engineering, and story-telling,

he gives us hope that society will continue to find new and innovative ways of providing this precious resource for all.

—Peter Gleick, editor of The World's Water series

“Water 4.0 captures an important story of the evolution of our current urban systems as well as discussing future options that are being researched today.”

—Michael C. Kavanaugh, Principal, Geosyntec Consultants, Inc., and Member, National Academy of Engineering

“One of the great failings of the academic world is that we rarely attempt to inform the public in any detail about our research. Water 4.0 presents an interesting and informative approach to educating the public on an abbreviated history of water.”

—William J. Cooper, University of California, Irvine

“By translating a serious and essential topic into something more catchy and fascinating than a whodunit novel, David Sedlak has provided us with an intriguing history of human water use. Packed with riveting stories and examples, the book helps us appreciate from where we have come and where we need to go.”

—Mathis Wackernagel, Global Footprint Network

“If you’ve ever wondered where your tap water comes from and what’s still in it when you drink it Sedlak’s deeply-informed historical narrative provides the answers. Water 4.0 offers the clearest vision yet of how we’ll get our water in the future.”

—Steven Solomon, author of Water: The Epic Struggle for Wealth, Power, & Civilization

Sedlak . . . has contributed a gem to the growing shelf of books on the emerging crisis surrounding water. . . . An erudite romp through two millennia of water and sanitation practice and technology.”

—Margaret Catley-Carlson, Nature (Margaret Catley-Carlson Nature 2014-01-16)

David Sedlak is the Malozemoff Professor in the Department of Civil and Environmental Engineering at the University of California, Berkeley, co-director of the Berkeley Water Center, and deputy director of the National Science Foundation’s engineering research center for Reinventing the Nation’s Urban Water Infrastructure (ReNUWIt). He is the 2014 recipient of the National Water Research Institute Clarke Prize.

If you are looking for a dry, academic treatise on why humans have corrupted the earth, keep looking. "Water 4.0" is a delightful, fascinating and ultimately very balanced treatment of humans and water: past, present, and future. David Sedlak has won many awards and recognition for his innovative and high quality teaching at Berkeley, and it shows through in the book. You will probably put the book down and be amazed at how much you have learned about water and what an easy read it was. The author has produced a very readable tour of water and its importance to human

civilization. Starting with the early efforts to channel fresh water to the present and an open view the future, the importance of water is delivered in a fascinating tour of Roman aqueducts, French sewers, Victorian battles for health, through modern systems for delivering water and removing wastes. Ultimately, the reader is given a great primer on water and its importance to life and society, and in the end, positioned to consider how human society will continue to grow given the challenges of obtaining and providing clean water while removing wastes in sustainable ways. I think that the author has succeed in his goal of calling our attention to the importance of water to all of us, and how big those challenges are for both low resource and high resource societies. More at his website: [...]

David Sedlak's treatise on the history and future prospects for water resources in our society is an eye-opening look at the remarkable engineering that has helped to make our civilization what it is today. His organization of water infrastructure development into four major "revolutions" seems appropriate and logical, and this treatment helps to explain the sometimes curious ways in which we currently access and dispose of the water we use. The book is an excellent read for both the expert and novice reader, and Professor Sedlak's deep understanding of the subject matter is readily apparent. The writing style is fun and easy to follow, and I found myself having many "aha!" moments as I read about development of treatment technologies and water delivery methods. Most importantly, Sedlak takes great care to highlight the significant and critical challenges that we face at this particular moment with respect to both water quality and water quantity. It is abundantly clear that our society must reevaluate the way in which we use and dispose of water if we are to avoid serious environmental, social, and economic hardships. Water 4.0 should prove a rallying point for those interested in this important topic, and therefore I highly recommend this book to anyone who cares about the health and well-being of both our society and the global environment.

This is a fine book about how water has, and continues to flow to and away from our homes and cities. Great historical perspective and ideas for the future of our water cycle. My only complaint is that farm use and misuse of water was not mentioned. The fact that arid states have irrigated thousands of acres of desert to grow crops that should be growing other places is the true crime of water misuse. Those crimes have been highly subsidized by government boondoggle at taxpayer expense. The more that we understand our water cycle the better we will be in our future decisions regarding the most precious resource.

This book is a great learning opportunity for audiences ranging from the casual science-minded reader to those actively working in the water field. Sedlak tells an inspiring narrative of how populations over time have risen to the challenge of developing water conveyance and improving public and environmental health through water and wastewater treatment. The particular challenges confronted by regions all around the U.S. are explored through fascinating and detailed historical anecdotes. Most importantly, the book addresses the ways in which populations of different scale and geography may continue to provide clean water in a world with a changing climate and diminishing energy reserves. The book describes a challenging yet hopeful way forward, while remaining pragmatic and engaging throughout.

Today's crises involving water quality and water quantity remind us of our primal connection to this precious resource and the sophisticated technology infrastructure that we have devised to ensure its reliable delivery. In the industrialized world, we truly take it all for granted. Dr. Sedlack's book helps us to understand why taking it for granted only defers the inevitable. Our invisible systems must be reinvented to meet the latest challenges we face. I emerged from this book deeply concerned but also very hopeful. The solutions to huge problems are within our imaginations.

This is an outstanding review of the history of water development from ancient times to the present identifying challenges in each era that have led to new practices. It discusses mistakes made in the past and challenges that exist today. It then proceeds to predict the direction of future development. It is relevant for anyone who wants a broad understanding of water development and the challenges facing humanity in coming up with something new to meet increasing water demand

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