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Susan J. Marks, Aqua Shock - The Water Crisis in America

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and still achieve development. Overall, this book is an excellent resource for anyone hoping to understand the evolution of water law in the developing world.

Geoffrey Frazier

Susan J. Marks, *Aqua Shock – The Water Crisis in America*, Bloomberg Press, New York (2009); 226 pp; \$24.95; ISBN 978-1-57660-332-1; hardcover.

In *Aqua Shock*, Susan J. Marks presents a realistic depiction of how the water crisis manifests itself in various localities across the United States. By linking statistics with experiences of individuals, municipalities, states, and regions, Marks provides a fundamental, yet detailed, explanation of water as a shrinking resource. Additionally, *Aqua Shock* explores the problems and complexities associated with water as a shrinking resource. Beginning with an analysis of contemporary global water issues and connections, Marks explains how humans use various sources of water. Then, she summarizes distinct bodies of water law controlling water supply and distribution. Finally, focusing on the depletion and pollution of both ground and surface water, Marks suggests various ways to mitigate the pending water crisis.

In chapter one, *Liquid Gold*, Marks emphasizes essential facts regarding water as a resource. Because less than one percent of the Earth's water is readily accessible freshwater that can satisfy human uses for energy, agriculture, industry, and personal use, Marks labels the resource "liquid gold." After breaking down water use in the United States by various categories of consumers, Marks illustrates local and regional water shortage examples and the battles that result. Although water use levels in the United States have leveled or slowed in the past thirty years, Marks explains that population growth and new industries that consume public water supply can lead to dangerous increases in water consumption, especially in arid areas.

In the beginning of chapter two, *Where Our Water Comes From: A Global Perspective*, Marks frames the global water crisis with appalling statistics: (1) 1.1 billion people do not have access to safe drinking water; (2) approximately 2.5 billion do not have access to adequate sanitation services; and (3) water-related diseases cause 2 million preventable deaths each year. Clearly, far too many humans suffer from lack of a basic need. Marks stresses that future predictions appear even grimmer. According to the United Nations Educational Scientific and Cultural Organization, seventy-five percent of the world's population could face freshwater scarcity.

Additionally, to elucidate the cross-border nature of the water crisis, Marks explains, for example, that a drought in Asia can create dust clouds that cross the Pacific Ocean and deposit pollution and dirt in the United States and other parts of the globe. Despite the closed nature of the hydrological cycle, climate change and increased weather variability can significantly affect how humans capture, store, and use water.

Although the hydrological cycle constantly recycles water, shortages remain a persistent problem for many localities. Shortages result from over-use of surface water and from extracting groundwater from underground aquifers at a rate higher than natural aquifer replenishment.

In chapter three, *The Disappearing Act*, Marks explores various causes of and contributions to a dwindling water supply. Population changes, land and water overuse, a dilapidated water transportation and treatment infrastructure, and unsound water policy and regulation all contribute to water shortages in the United States. Notably, Marks emphasizes that more than half of the wastewater generated in the United States is actually potable water. In addition, Marks explains that fixing the nation's water infrastructure network, which is four times longer than the National Highway System, will be not be quick, easy, or inexpensive.

In chapter four, *Danger! Safe Water at Risk*, Marks acknowledges a deadly global phenomenon: lack of access to safe, toxin-free drinking water. She explores some of the most pervasive manufactured and naturally occurring water contaminants that threaten human health: microbial contaminants, inorganic contaminants, pesticides, herbicides, organic chemical contaminants, and radioactive materials. Subsequently, Marks reveals that far too many water treatment facilities are ill-equipped to combat numerous contaminants. In conclusion, Marks informs readers how to determine if their drinking water is safe and lists suggestions that businesses can take to lessen the risk of groundwater contamination. Marks' suggestions range from learning more about human impacts on groundwater to replacing toxic supplies, practicing waste reduction, and implementing computerized waste inventory and control systems.

In chapter five, *On Governing Water*, Marks provides an overview of the two main approaches to water rights: riparian and prior appropriation. In addition, she explains a few approaches employing variations and combinations of the two. For example, under a system of regulated riparianism, the state considers water to be public property, which the state manages in trust through time-limited permits. Later, Marks explores common problems found in western water disputes and adjudications to demonstrate that existing water laws and processes often exacerbate water struggles. Two examples of the common problems found in western water disputes and adjudications include resource shortage and over allocation.

Chapter six, *America's Water Gods*, describes who, besides courts, controls water use at both the local and federal level and explores how these entities manage water. The entities Marks examines include state engineers, state departments of natural resources, heads of utilities, regional water boards, water management districts, the federal government, and private individuals holding large amounts of water rights. Marks espouses various solutions for more effective water management, including the creation of a nationalized water policy and management and the implementation of coordinated approaches

catered to local and regional water nuances.

Chapter seven, *The Cost of Water: Cash, Commodities and Capitalism*, explains how water scarcity and antiquated water infrastructure have contributed to the rise of water as a commodity in the twenty-first century. Due to increasing demand for water, overused supply, and the high costs of replacing infrastructure, Marks concludes that the price of water will continue to rise into the near future. Because of a widespread belief that water is a readily accessible, reusable resource, the price Americans are willing to pay for water is often below its true value. Finally, to demonstrate how individuals profit from the demand for water (especially during times of shortage), Marks examines T. Boone Pickens' plan to sell billions of gallons of his underground "Mesa Water" throughout the Texas Panhandle.

In chapter eight, *Can Our Water Be Saved?* Marks concludes that humans must realize the limited nature of water and change their water use habits accordingly. For example, Marks suggests that states should: use water more efficiently; limit non-priority uses such as lawn watering; collectively manage groundwater and surface water; capture storm water and allow it to replenish aquifers; and include environmental costs in the price of water. In order to improve water conservation, Marks urges readers to only use "what is necessary." Finally, Marks highlights the pervasive problems of non-point source pollution and suggests how utilizing porous driving surfaces and changing drainage approaches can help ameliorate it.

In essence, *Aqua Shock* provides a readable overview of critical issues relating to water in the United States and elicits the need to find common ground solutions that better preserve and protect the resource. Anyone looking for an informative, entry-level narrative should consider reading this book because it explains the current hydrological predicament in the United States and provides some solutions readers can engage in to help relieve some of the problems. Alternatively, experienced water law practitioners and advanced water scholars may find this book remedial and less beneficial because the author wrote the book for inexperienced water practitioners and individuals interested in water regulation and reform.

Todd Likman

Mohamed T. El-Ashry and Diana C. Gibbons eds., *Water and Arid Lands of the Western United States*, Cambridge University Press, New York (2009); 415 pp.; \$55.00; ISBN 978-0-521-11822-4; paperback.

Cambridge University Press released *Water and Arid Lands of the Western United States*, a compilation of essays edited by Mohamed T. El-Ashry and Diana Gibbons, in paperback. This volume investigates agricultural and municipal demands on water supplies and water management in the American West. The editors chose the essays to show how the West can avoid expensive supply-side projects and