

# Book Review: Water: All That Matters

by Blog Admin

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*The world's population is increasing; but its supply of water is not. Empires have grown and declined due to discovery and exhaustion of their water sources, and now the West is at last catching on to the fact that abundance of water can no longer be taken for granted. In **Water: All That Matters**, Paul Younger takes in scientific studies, the social impact of water wars, and development projects gone awry. Reviewed by **Stacy Edgar**.*



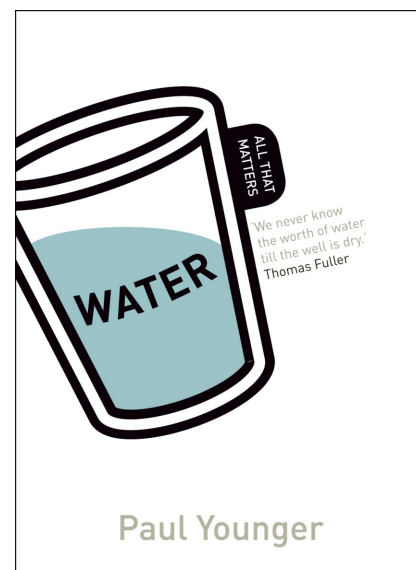
**Water: All That Matters. Paul Younger. Hodder. November 2012.**

## Find this book:

“Water is life,” hydrologist Paul Younger reminds us in this short volume, which overviews the geological and cultural importance of water for day to day life. A world class hydrologist now based at the University of Glasgow, Younger straddles the worlds of academia and international aid programs, as he is also Chair of the Global Scientific Committee of international NGO the Plant Earth Institute. *Water: All That Matters* presents the fundamentals on key themes right from the basics of the water molecule through to water’s linkage to so many human activities and the concerns around climate change, virtual water, and hydrological change.

In the book’s opening, we are reminded that humans can survive without food for weeks on end, but would die after only three days without water. In the development world, it is widely understood that water plays a critical role in determining food security, agricultural development, public health and sanitation, environmental sustainability, and climate change resiliency. But, do we understand why?

Take chapter 3, for example, which gives a broad overview of different water sources – surface water, ground water, volcanic steam, water vapor, and so on and so forth. Here, Younger provides a general overview of the hydrological cycle, discussing how water evaporates over the sea at a 6:1 ratio compared to water evaporation over land. When water evaporates from the ocean, its salt and other mineral content is left behind creating a source of fresh water; a phenomenon in nature that should delight us fresh water-dependent creatures. Attention then shifts to what’s below the surface, quite literally, as Younger reminds us that 99% of liquid freshwater is hidden beneath the soil surface as groundwater. In his words, “...forget rivers and instead think of a ‘hidden sea.’” Lest we think of all groundwater as “pure,” chapter 4 includes a gruesome image of a victim of arsenic poisoning and a cautionary tale of water supply and sanitation programs. In the 1970s, Bangladesh embarked on a clean water campaign, drilling millions of tube wells that were thought to expand access to clean water. The wells did just the opposite and created drinking water supplies from groundwater sources with traces of arsenic. The ill-designed wells, though well-intentioned, exposed communities to poisoning – a problem that was not discovered until 1993. A [World Health Organization bulletin](#) called it “the largest mass poisoning of a population in history” and found that as many as 77 million people, half of the country’s population, have been exposed to toxic levels of arsenic.



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Social scientists may be more interested to learn what this has to do with how people interact with each other. Younger answers this question in chapters 7, 8 and 9, which discuss water resource use, climate change, and water conflicts, respectively. In the developing world, agriculture comprises 70% of water use. Business use (e.g. manufacturing) and cooling for thermally-driven electricity generation plants make up the second and third largest percentage of water consumption and exceed agriculture in magnitude of water use in Northern Europe and North America. Worldwide, domestic water use for hygiene, laundry, food preparation, and drinking comes in fourth. Comparing per capita water consumption with levels of economic development, it is no surprise that average domestic water use is 250 liters per person per day (L/p/d) in the United States and Australia, compared with 10 L/p/d in poverty-stricken parts of India and Africa. For each type of water use, including fishing and ecosystem services such as flood flow storage, Younger overviews the process of water renewal. While some water evaporates in each of these uses, approximately 80% will return as wastewater, which if treated properly to remove pollutants can be returned to the natural environment. The challenge? Wastewater treatment and management does not always happen, causing it to flow to groundwater and contaminate fresh water supplies.

Further discussing the impact of humans on the environment, chapter 8 discusses the hydrological consequences of climate change. [As scientists have recently recorded carbon dioxide \(CO2\) volume in the atmosphere exceeding 400 parts per million \(ppm\) for the first time in human history](#), this chapter should have readers sitting up attentively. An increase in extreme weather events? Flooding? These are both serious possibilities in the future. However, Younger reminds us that there are actionable solutions that are within our control. In particular, he advocates for the adoption of Integrated Land and Water Resource Management (ILWRM). This paradigm seeks three goals: 1) equitable access to water and a long-term economic future for all basin residents; 2) agreed principles to restrain overall water demand and efficient allocation between agricultural, industrial, and domestic users; and 3) restoration of degraded water and land resources to reduce flood risks and safeguard ecosystems and local heritage. The chapter provides further detail of the different elements of this approach, highlighting the different ecological events that must be taken into account in promoting equitable and sustainable governance of natural resources.

Chapter 9 demystifies an oft-reported media claim—that the next world war will be fought over access to water resources. On the contrary, writes the author, water is still cheaply available and yet to be a trigger of inter-state conflict. Negotiation over trans-boundary water resources is complex, as Younger notes, citing the Indus River, the Tigris and Euphrates, as well as the Limpopo and Okavango as illustrative examples. Within states, disputes between communities situated upstream and downstream are a point of vulnerability, as the usage and management of each affects the water access of the other. Remember that the bulk of freshwater supplies are located beneath the surface, underground aquifers are also a point of sensitivity between multiple communities—and sometimes states—who rely on them for water access.

To conclude, Younger offers an individual plea: lay off the bottled water. Chapter 10 covers his argument on why we are getting swindled when we drink bottled water and what our impact is on the environment. The book finishes with a list of 100 ideas for exploring water in more detail, offering a top ten list of world heritage sites to a list of the water footprint of common commodities. I personally have spent many an hour on the internet looking up the [Dujiangyan Irrigation System](#) in Sichuan, China, per his prompting. Less than 150 pages in total length, Younger offers a handy lay reader's guide to hydrology: a useful cheat sheet to those of us without engineering degrees and offering a geological perspective to agricultural development and vulnerabilities to climate change. With cautionary tales of those neglected hydrology in design of aid programs, it also serves as reminder that whether we realize it or not, water is really all that matters.

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