

FOREWORD BY PAUL O'CALLAGHAN, CEO, O₂ ENVIRONMENTAL

The Value of WATER

A COMPENDIUM OF ESSAYS BY SMART CEOS



DONNA VINCENT ROA &
THE VALUE OF WATER COALITION

THE VALUE OF WATER:
A COMPENDIUM OF ESSAYS
BY SMART CEOs

Donna Vincent Roa, PhD, ABC
and The Value of Water Coalition

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About the Project

THOUGHT LEADERSHIP ON WATER AND ITS VALUE

Water, with its high-profile risk, poses a threat to business continuity, reputation, product margins, and growth while at the same time creating value and opportunities. Businesses compete for access to water and must continually adapt to its availability, quality, and access. CEOs, C-suite executives, and other leaders are at the helm of this evolving business dynamic and have the narratives that can change our understanding of the value of water from a business perspective.

Donna Vincent Roa, in collaboration with the Value of Water Coalition, created *The Value of Water: A Compendium of Essays by Smart CEOs* to feature industry leaders' perspectives about the value of water and its relationship to brand, reputation, business continuity, innovation, economic success, technology, public health, and more.

This book documents CEOs' insights on the value of water, probes complex issues, informs the conversation about water's future for business, explores how the value of water leadership has resulted in improved business performance, shows that "business as usual" exploitation of water needs to change, and shares industry best practices and calls to action.

We hope that these essays inform your perspectives about water, convince you that we all need to be stewards of this precious resource, and ultimately, change your water consciousness and awareness about the value of water.

Collaborator

VALUE OF WATER COALITION

The Value of Water Coalition is a broad alliance of public and private sector leading water companies, utilities, national associations, and safe drinking water and clean water interests working together to shift public attitudes about and increase investments in America's water infrastructure. Through its Water Works! campaign, the coalition educates the public on the importance of clean, safe, and reliable water to and from every home, business, and community to help ensure quality water service and to grow jobs and economic opportunity for current and future generations. The coalition includes American Water, American Water Works Association, Association of Metropolitan Water Agencies, CH2M HILL, MWH Global, National Association of Clean Water Agencies, National Association of Water Companies, United Water, Veolia, Water Environment Federation, Xylem Inc., and the U.S. Water Alliance (Project Manager).

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Water Is Not For Fighting Over

It's doubtful whether Samuel Clemens ever said, "Whisky is for drinking and water is for fighting over." What we are certain of is that Clemens derived his pen name, Mark Twain, from his experience as a Mississippi River steamboat captain.

The leadsman on a riverboat would indicate the river's depth of two fathoms (12 feet) with the cry of "by the mark twain." Twain was an old-fashioned expression for two, and in this case, two marks of six feet indicated safe passage for steamboats of the day.

Many people repeatedly cite Twain's purported quote, never knowing the truth of the matter. With greater pressure and increasing importance on water resource management, it is important we think critically, review data and question conventionality.

Twain did in fact know a thing or two about water. His ability to understand the water he was interacting with—depth measurement and the flow and speed of currents, swirls, and eddies—indicated success or failure in commerce, safety or danger, even life or death. The role of

water in society, and our awareness of how to interact with it, will also determine our fate, just as it did for Twain.

Today, we are even more reliant on our knowledge about water. We usually think of it in typical technical terms of pH, turbidity, dissolved oxygen, and contaminants. Given the importance of water, however, we must expand our knowledge to include concepts that encompass availability and scarcity, among others, that highlight water's central role in our collective physical and economic vitality.

The impacts we have been experiencing that are related to water highlight a need for increased awareness and change. Whether these impacts are naturally occurring, for example, droughts and floods, or the result of our direct behavior, such as increasing pollution or competition for use, their realities present great challenges to our vitality as a society. Success or failure depends upon our ability to understand the real value of water and the vital role it plays in all aspects of our lives.

New Realities Need New Approaches. Many different groups recognize the value of water and work to protect and preserve this valuable resource to ensure adequate access and efficient use for generations to come. Governments, cities, industries, NGOs and citizens have come to the realization that there needs to be a balance between protection, preservation, and use in order to sustain communities and growth. New awareness and vernacular around the topics are needed to allow meaningful and effective collaboration of all stakeholders to raise the awareness and recognition of the true value of water to ensure a bright future.

Innovation from cooperation is emerging. Different organizations continue to learn how to complement one another's goals, funding, research, conservation and outreach, and managing greater challenges together. New and old models work when they rely on best practices or create new ones. From an operational perspective, traditional solutions like public-private partnerships or private-sector operation of other companies' assets enable risk absorption and greater performance via incentivized payments and success metrics. Similarly, industrial efforts to reduce water consumption or discharge higher quality water,

combined with the efforts of conservation groups, are leading to collaborative successes.

The Economic Challenge. Twain understood economic challenges. After much fame and fortune, the great writer experienced bankruptcy due to failed business ventures.

A Columbia University study showed the economic challenges faced by U.S. water infrastructure to ensure our basic need for safe water utilities. Over a 10-year period, water utility debt increased by 33% and water rates increased by 23%, on average. At one-third of the nation's utilities, both debt and rates increased more than 100%. This begs for increased awareness and support of citizens for the needed infrastructure improvements and increased operational efficiency of the utilities serving society.

The world's growing, thirsty population is triggering new, more, and not-always-understood demands that more closely link water and economics. The complexity and speed of these challenges is stunning.

Growth will aggravate these trends through additional resource and infrastructure pressures. Indeed, "safe water" scarcity and competition for its use will escalate. Most people take water for granted, as well as its connection to economics. In 2008, leaders at the World Economic Forum set out a call to action to better understand how water's link to economic growth and to highlight water security challenges "if a business as usual approach to water management is maintained." In 2012, water security emerged as a top five systemic global risk in the group's annual survey of global thought leaders. From public health, food security, energy production, water scarcity, pollution and disruption of global supply chains to the sheer science and cost of water treatment, the management and use of water is now recognized as having the ability to cause tsunami-like waves throughout society.

Principles With Embedded Solutions. Water's value can mean very different things. It can be a very specific number that monetizes the direct and indirect risks associated with the cost of a glass of water, or it can be viewed as the carrier of life, enabling essentially every activity in

the natural world and of people, from agriculture to microchip manufacturing. Yet public awareness about water's value lags.

From national leaders to individual citizens, all of us need to understand and appreciate water's social and environmental "value." Most people will never have to calculate the cost to produce water or to make a return-on-investment business case linked to water. Yet if we understand the fundamental role of water not only in our lives, but also to the economy and the very stability of society, we will be more careful and considerate of conservation and stewardship that can lead us to a sustainable water supply for generations to come.

It is incumbent upon leaders to ensure thoughtful, responsible, and sustainable action. Some of the statistics may appear bleak, but many solutions already exist that can guide us forward. To progress, we need a framework of principles that most, if not all, interested parties can abide by. From those principles, more solutions will emerge.

Gauge and Recognize the True Value of Water. Water is cheap relative to its actual value. Disconnects between price and value limit awareness and hinder innovation and the behavioral changes needed to sustain and benefit people and the preservation of water as a valuable resource. The value of water needs to be recognized as the financial or societal impact it can have beyond the direct price paid to procure it. Because these costs are very low, it is difficult to make the business case for more sustainable solutions or behaviors because the return on investment is very low or requires a lengthy payback period. When you add in many of the indirect costs on a unit basis—treatment, regulatory permitting, ecosystem health, impact to a company's or city's brand, and social license to operate—that same water becomes more valuable in terms of impact.

However, considering the cost of not having it results in a much more accurate assessment. All of a sudden, the case is clearer when one realizes how much of a financial or societal impact water, or lack thereof, can have on society.

One visible example is the oil sands sector in Canada. A multi-industry collaboration developed an approach that helps monetize water's true cost and value. Some oil sands producers have collaborated

with local interest groups to understand the impact and value of natural water sources to the local population who value these as sacred natural resources. As a result, they have taken a more innovative and sustainable approach to ensure better water stewardship and conservation. The true value of water approach helps make the case for more sustainable practices.

Growth Must Be Responsibly Managed—No More Business As Usual. As in the case of the oil sands, water offers a multitude of complexities. Both industrial and societal growth must be responsibly managed. Today, 36% of the world's population and 22% of global GDP are in areas with unsustainable water use levels. Analysis by the International Food Policy Research Institute suggests that half of the world's population and 45% of global GDP will be exposed to severe water scarcity by 2050 if a business-as-usual model perpetuates. Growth, infrastructure demands, economic constraints, and climate change are intersecting with increased competition for resources, creating great pressures on cities and businesses. New and old models and ideas that represent the best thinking, best results, and best practices are required. A "blue model" of growth can improve productivity while using less water and finding ways to sustainably replenish sources. Cities and industries must adopt more efficient consumption, higher levels of reuse, and true innovation or risk the consequences.

Speed It Up. If problems are not at a business-as-usual pace, then our solutions cannot be either. Innovation and speed are required. We should learn from other industries. For example, NASA recently focused on a faster-better-cheaper approach to unmanned mission, achieving great successes in planetary exploration at a fraction of the time and expense previously required. This approach can address our down-to-earth but profoundly important water issues.

Measurement and Best Practices. That which is measured gets done. Measurement of best practices enables public utilities, companies and societies to benchmark against one another. There are many examples of communities and industries that incorporate innovation in

green infrastructure solutions, renewable energy partnerships to reduce water use in energy production, and carbon footprint reductions.

More Investment and Improved Operational Efficiency. The entire economy is fueled by water. Green investments can produce direct jobs and stimulate economic activity, but some lend the impression that increasing infrastructure investment will solve most of our water woes. Investments create jobs, both directly and indirectly, but we must also ensure our investments are well considered, well placed and targeted toward efficiency and preservation.

Explore the Circular Economy. The circular economy is not a household word, but it will be if we take the use, reuse, recovery, and restoration of natural resources seriously. In a circular economy, we seek to learn from nature, making waste a resource or raw material. We minimize or negate environmental impact. Energy use becomes much more efficient and based on renewables. Our pattern of “taking-making-disposing” is altered, relieving considerable pressure on our natural resources, especially energy and water.

In Honolulu, a wastewater reclamation facility uses highly sophisticated technologies to produce two distinct beneficial reuse water products. What was once wastewater becomes either a product for irrigation of parks, green spaces and golf courses or an ultrapure water for industry that meets much higher standards than drinking water requirement.

Innovation From Cooperation. As stated before, all stakeholders must strive for more collaboration to innovate together—NGOs and industry, and public entities with private corporations.

One example of a private-public collaboration model is the Peer Performance Solution approach that supports public utilities that still want a public workforce. Great innovation and efficiency has been gained from private-sector managers using methods and experience from their operations while embedded in a public workforce to help tackle essentially any challenge.

Limit Ideology—Liberate Solutions. Ideology often plays a role in many places, but more constructive, rather than destructive, dialogue is

needed between all of the stakeholders. While protesting shows great passion, the time has come to realign that passion into constructive collaboration.

Greater Public Awareness and Involvement Equals Greater Results. Collectively, the water industry is working on awareness. However, it will take a continuous beat, not an occasional gong in the form of drought or water main breaks, to shape human behavior. Consciousness goes hand in hand with conservation and thoughtful programs, and so transparency and empowerment of people is required. Data about water rates, quality (at home and in local watersheds) and availability is abundant, but not centralized nor easily understood.

Consolidating and transforming the data captured by these traditional sources combined with crowd-sourced data will generate information that will enable education, storytelling, and greater knowledge about water and its true value.

With the phenomenon of social media and instant information, the potential to increase awareness has never been so great. This increased knowledge will transform behavior.

The value of water will always be best defined through economics and culture—economics because we should seek to obtain as many economic, social and environmental benefits as possible, and culture because we must decide what we, collectively, are willing to do to sustainably manage resources to meet needs. Antoine Frérot, chairman of Veolia, argues, “The new culture of water will be one of responsibility.” Who plays a part? Frérot argues everyone.

Indeed, every solution noted above requires people working together. Water—the very nexus of growth—can and should be a catalyst for cooperation and prosperity.

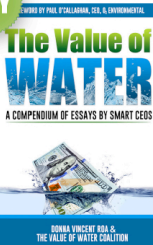
In that context, then, I’d hope that if Mark Twain were alive today, he’d offer this: “Water isn’t for fighting, water is for cooperating.”

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