



Scaling Corporate Water Stewardship to Address Water Challenges in the Colorado River Basin

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ABOUT THE PACIFIC INSTITUTE

The Pacific Institute envisions a world in which society, the economy, and the environment have the water they need to thrive now and in the future. In pursuit of this vision, the Institute creates and advances solutions to the world's most pressing water challenges, such as unsustainable water management and use; climate change; environmental degradation; food, fiber, and energy production for a growing population; and basic lack of access to freshwater and sanitation. Since 1987, the Pacific Institute has cut across traditional areas of study and actively collaborated with a diverse set of stakeholders, including policymakers, scientists, corporate leaders, international organizations such as the United Nations, advocacy groups, and local communities. This interdisciplinary and nonpartisan approach helps bring diverse interests together to forge effective real-world solutions. Since 2009, the Pacific Institute has also acted as co-secretariat for the UN Global Compact CEO Water Mandate, a global commitment platform that mobilizes a critical mass of business leaders to address global water challenges through corporate water stewardship. More information about the Institute and our staff, directors, and funders can be found at www.pacinst.org.

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ACRONYMS AND ABBREVIATIONS

AWS – Alliance for Water Stewardship

BIER – Beverage Industry Environmental Roundtable

BEF – Bonneville Environmental Foundation

BWS – Business for Water Stewardship

CDP – formerly Carbon Disclosure Project

CWAC – California Water Action Collaborative

ESG – Environmental, Social, and Governance

GIZ – Deutsche Gesellschaft für Internationale Zusammenarbeit (German development agency)

GRI – Global Reporting Initiative

ITP – International Tourism Partnership

MIT – Massachusetts Institute of Technology

NBS – Nature-based solutions

PES – Payment for ecosystem services

SDG – Sustainable Development Goal

SME – Small or medium enterprise

TNC – The Nature Conservancy

UN-PRI – United Nations Principles for Responsible Investment

WASH – Water, sanitation, and hygiene

WFF – Walton Family Foundation

WRI – World Resources Institute

WWF – World Wildlife Fund

DEFINITIONS

Corporate water stewardship (water stewardship)

– An approach that allows companies to identify and manage water-related business risks, understand and mitigate their adverse impacts on ecosystems and communities, and contribute to and help enable more sustainable management of shared freshwater resources.

Nature-based solutions (NBS) – Solutions inspired and supported by nature and use, or mimic, natural processes to contribute to the improved management of water. An NBS can involve conserving or rehabilitating natural ecosystems and/or the enhancement or creation of natural processes in modified or artificial ecosystems. They can be applied at micro (e.g. a dry toilet) or macro (e.g. landscape) scales.

Payment for ecosystem service (PES) – An incentive-based instrument that seeks to monetize the external, non-market values of environmental services, such as removal of pollutants and regulation of precipitation events, into financial incentives for local actors to provide such services.

Water footprint – The water footprint of an individual, community or business is defined as the total volume of freshwater used to produce the goods and services consumed by the individual or community or produced by the business.

Water-related collective action – A multi-stakeholder coordinated approach to water resource management at the watershed scale (companies, civil society, communities, and the public sector) for the benefit of all water users in that location.

Water risk – The effect of water-related uncertainty on an organization’s objectives. “Water risk for businesses” typically refers to the ways in which water-related issues potentially undermine business viability. It is commonly categorized into three interrelated types:

- **Physical:** Having too little water, too much water, water that is unfit for use, or inaccessible water.
- **Regulatory:** Changing, ineffective, or poorly-implemented public water policy and/or regulations.
- **Reputational:** Stakeholder perceptions that a company does not conduct business in a sustainable or responsible fashion with respect to water.

EXECUTIVE SUMMARY

THE COLORADO RIVER BASIN states (the Basin) face significant water challenges, including the overallocation of water, long-term drought, and climate change. The private sector can help address these challenges and advance water sustainability in the Basin in several ways, by reducing its own water footprint or that of its suppliers, using its collective voice to influence and inform public policy, and by investing in innovative and collaborative solutions. While corporate water stewardship is not a panacea for all water challenges in the Basin, companies can make a meaningful contribution to improving water sustainability in the Basin.

The purpose of this report, commissioned by the Walton Family Foundation (WFF), is to examine a set of key corporate water stewardship actions and activities, with associated drivers and barriers, to identify how the private sector could address some of the water challenges in the Basin. It also provides recommendations to promote uptake of leading corporate water stewardship practices in the Basin. The report is divided into three sections. Section 1 describes corporate water stewardship in the Basin. Section 2 describes several corporate water stewardship strategies and identifies the drivers, barriers, and relevance to the Basin for each strategy. Section 3 provides recommendations for scaling corporate water stewardship through strategic investments.

Corporate water stewardship in the Colorado River Basin is still relatively nascent. Compounding

this challenge is the general lack of a facilitated enabling environment for water users, including companies, who do not typically work together to collaborate on shared water challenges. Two key strategies for advancing the maturity and reach of corporate water stewardship in the Basin are (1) to expand water stewardship education, decision-making data, and starter tools about the value of water stewardship and (2) to facilitate local collaboration on water stewardship.

Strategy 1: Support Water Stewardship Education, Decision-Making Data, and Starter Tools at the Global Level

By educating companies on how water stewardship can play a role in both achieving their own corporate goals and contributing to solving shared water challenges, we can increase the number of companies that embrace corporate water stewardship and encourage them to make positive contributions towards sustainable water management for the Basin.

RECOMMENDATIONS:

- 1) Support improved corporate reporting on water use and stewardship activities.
- 2) Support online educational and risk assessment tools to help companies get started.
- 3) Support investor-led efforts to engage companies in corporate water stewardship.

Strategy 2: Facilitate Local Action on Water Stewardship

The success of water stewardship activities beyond a company's direct operations (and often within direct operations as well) depends on partnerships and collaboration. This strategy includes recommendations to scale water stewardship practices at the local level, leveraging third party intermediaries to facilitate relationship-building between companies and other stakeholders.

RECOMMENDATIONS:

- 1) Target engagement on water-intensive industries in the Basin.
- 2) Target value chain engagement on industries with important supply chains in the Basin.
- 3) Support platforms to facilitate relationship-building and knowledge sharing between companies and NGOs, water utilities, and other key water stakeholders.

Corporate water stewardship is an approach that allows companies to identify and manage water-related business risks, understand and mitigate their adverse impacts on ecosystems and communities, and contribute to a more sustainable management of shared water resources. Companies practicing good corporate water stewardship act upon the true value of water to their business and the communities in which they operate, supply from, and sell to. These companies understand the business imperative of integrating water management into their decision-making. However, the current pool of companies practicing robust water stewardship in the Basin is small, and the scale of their collective activities is nowhere near commensurate to the magnitude of water challenges confronting the Basin. But these activities have considerable potential for positive impact, with appropriate investments in water stewardship education, improved decision-making data, relevant tools, and facilitated local collaboration.

INTRODUCTION

THE THREE MAIN WATER CHALLENGES in the Colorado River Basin states (the Basin) are long-term drought, over-allocation of water, and the expected decline in runoff due to climate change. The recently approved Drought Contingency Plan (DCP) provides a short-term bridge toward the development of a more comprehensive, longer-term set of solutions. However, questions remain whether the next round of Basin discussions will yield solutions commensurate with the magnitude of the threats posed by over-allocation, drought, and climate change.

The private sector can advance sustainable water management in the Basin in several ways, including by reducing its own water footprint or that of its suppliers, using its collective voice to influence and inform public policy debate, and by investing in innovative and collaborative solutions. Corporate water stewardship is not a panacea for all water challenges in the Basin, but it can make a meaningful contribution.

The purpose of this report, commissioned by the Walton Family Foundation (WFF), is to examine a set of key corporate water stewardship actions and activities, with associated drivers and barriers, to identify how the private sector could address some of the water challenges in the Basin. It also provides recommendations to promote uptake of leading corporate water stewardship practices in the Basin and in other parts of the western United States.

In our research for this report, we examined the following resources:

- Data from the CDP corporate water database for 2014-2018;¹
- Communication of Progress (COP) reports submitted to the CEO Water Mandate by mandate-endorsing companies;
- Company sustainability reports;
- Projects and case studies from the Water Action Hub;² and
- Other corporate water stewardship literature, including reports on business activities in the Basin such as Business for Water Stewardship's (BWS) *Corporate Contributions to Water Stewardship in Colorado and Arizona*.³

We analyzed data from 42 companies from a variety of business sectors (from the above listed sources), including beverages, electronic components (including semi-conductors), food and fiber, hospitality, mining, and thermal power

1 CDP is a global non-profit environmental disclosure platform for investors, companies, and cities. See www.cdp.net.

2 The Water Action Hub is a global online collaboration and knowledge sharing platform for water sustainability, developed by the CEO Water Mandate. See <https://wateractionhub.org/>.

3 Business for Water Stewardship, *Corporate Contributions to Water Stewardship in Colorado and Arizona*, 2018, <https://businessforwater.org/wp-content/uploads/2018/11/BWS-Water-Stewardship-Report-30-Oct-2018-FINAL-VERSION.pdf>.

generation.⁴ See Appendix 1 for a complete list of the companies. We selected these companies based on the following criteria:

- i. Companies known to reflect the major industries operating in the Basin;
- ii. Companies with comparable time-series data available to examine company responses over time; and
- iii. Companies large enough to have sufficient resources to act on the water challenges in the Basin.

Note that small- and medium-sized companies were not included because data were not available.

The report was reviewed by three external practitioners with experience in corporate water stewardship and/or the Colorado River Basin: Paul Fleming from Microsoft, Todd Reeve from Bonneville Environmental Foundation, and Season Martin from Martin & McCoy LLC (formerly with the Colorado River Program of The Nature Conservancy).

This report is divided into three sections. Section 1 provides an overview of corporate water stewardship in the Basin. Section 2 explores corporate water stewardship activities, describing the drivers, barriers, and relevance to the Basin for each. Section 3 provides recommendations on how to scale corporate water stewardship through strategic investments.

⁴ The category names for the industries were taken from CDP identification nomenclature.

SECTION 1: CORPORATE WATER STEWARDSHIP IN THE COLORADO RIVER BASIN

THE COLORADO RIVER BASIN

THE COLORADO RIVER BASIN covers some 246,000 square miles. The Colorado River is shared among seven states within the United States (Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming) and two states within Mexico (Baja California and Sonora). The river used to run more than 1,400 miles from its headwaters high in the Rocky Mountains to the Gulf of California, but now—overallocated and fully depleted—the river disappears into its sandy bed 80 miles upstream of the ocean.

The Basin has been in a severe extended drought, with the period from 2000 through 2018 the driest 19-year period over the last century and one of the driest periods in the 1,200-year paleo-record.⁵ Climate change is increasing evaporation rates and water demand, diminishing snowpack, and is projected to reduce river flows by 20 percent within 30 years, exacerbating existing pressures on the river.⁶ Despite the recent extended drought and shrinking water supplies, Arizona, Baja California, California, Nevada, and Sonora historically were able to avoid shortage conditions and rationing by depleting reservoir storage. Under the new Drought Contingency Plan, all but California will reduce their take of Colorado River water in 2020, triggered by depleted reservoir storage levels.

5 “Testimony of Brenda Burman, Commissioner, Bureau of Reclamation U.S. Department of the Interior, Before the Committee on Natural Resources Subcommittee on Water, Oceans, and Wildlife,” U.S. House of Representatives, 2019, <https://naturalresources.house.gov/imo/media/doc/HNR%20Burman%20DCP%20testimony%203.27.19%20FINAL.pdf>.

6 Bradley Udall and Jonathan Overpeck, “The twenty-first century Colorado River hot drought and implications for the future,” *Water Resources. Res.*, 53, 2404–2418 (2017), doi:10.1002/2016WR019638.

Basin stakeholders recognize current and future threats to water supply reliability and have created a host of innovative and cooperative methods to promote conservation and delay the onset and minimize the magnitude of shortages. However, it is uncertain whether the next round of Basin water use discussions—expected to begin within the next year—will yield solutions to match the magnitude of the threats posed by over-allocation and climate change.

BASIN WATER USERS

Total consumptive use of Colorado River water varies year to year; in recent years it has averaged about 13.3 million acre-feet, including deliveries to Mexico but not including evaporation from Lower Basin reservoirs. Water used within and exported from the Colorado River Basin sustains some 40 million people in the United States and Mexico and on 29 federally recognized tribal reservations, sustaining cities such as Albuquerque, Denver, Las Vegas, Los Angeles, Mexicali, Phoenix, San Diego, Tijuana, and Tucson. In most of these cities, total water use has declined relative to water use 10 and even 20 years earlier, despite significant economic and population growth, reflecting widespread adoption of physical and behavioral changes.⁷

Water from the Colorado River generates an estimated \$8 billion annually in direct income for agriculture, with several times that amount in related income for farm services and other associated industries. Agriculture, primarily forage crops like alfalfa, consumes more than 70 percent of Colorado River water. Colorado River water irrigates more than 90 percent of the nation’s winter vegetables, sustains robust cattle and dairy

7 Michael J. Cohen, *Municipal Deliveries of Colorado River Basin Water* (Pacific Institute, June 2011). Retrieved from https://pacinst.org/wp-content/uploads/2013/02/crb_water_8_21_2011.pdf.

Figure 1.
Colorado River Basin and Areas Receiving Water from the Basin



Source: United States Bureau of Reclamation

operations throughout the western United States, and some 175,000 acres of cotton in Arizona.⁸

The Colorado River helps support, by one estimate, 16 million jobs and \$942 billion in labor income each year.⁹ In addition, recreational activities along

the Colorado River and its tributaries contribute \$17 billion to local economies.¹⁰

Corporate use of Colorado River basin water is not measured, directly or indirectly. Water use for direct operations, such as manufacturing, may be reflected within municipal water use, although some water used in manufacturing is self-supplied and often is not reflected in water use data. Similarly, groundwater use accounting varies across jurisdictions and frequently is not reported as part of Basin water use, especially within Arizona, the Coachella Valley in California, and in Mexico's and Nevada's portions of the Basin. Water use for some supply chains, especially food and beverages and apparel, is embedded in agricultural water use, though identifying these supply chains and their physical sources within the Basin is often challenging.

CORPORATE WATER STEWARDSHIP IN THE BASIN

There are many examples of corporate water stewardship within the Colorado River Basin. The membership of local and regional water stewardship initiatives in the Basin provide good insight into the number and types of companies engaging in water stewardship responses. Examples include:

- More than 1,200 companies across the United States are involved in the BWS platform. Its members include Danone North America (formerly WhiteWave Foods), The Coca-Cola Company, Microsoft, Intel, Marriott International, Nestle, Cox Enterprises, Waste Management, and Qualcomm. These are all

⁸ Michael Cohen, Juliet Christian-Smith, and John Berggren, *Water to Supply the Land: Irrigated Agriculture in the Colorado River Basin* (Pacific Institute, May 2013), Retrieved from <https://pacinst.org/publication/water-to-supply-the-land-irrigated-agriculture-in-the-colorado-river-basin/>.

⁹ Tim James, Anthony Evans, Eva Madly, and Cary Kelly, *The Economic Importance of the Colorado River to the Basin Region* (L William Seidman Research Institute, W. P. Carey School of Business, Arizona State University, December 18, 2014). Retrieved from <http://businessforwater.org/wp-content/uploads/2016/12/PTF-Final-121814.pdf>.

¹⁰ Southwick Associates, *Economic Contributions of Recreational Activity along the Colorado River and its Tributaries*, (Protect the Flows, 2012). Retrieved from https://businessforwater.org/wp-content/uploads/2017/01/Colorado-River-Recreational-Economic-Impacts-Southwick-Associates-5-3-12_2.pdf.

significant players in their industries and have the potential to persuade other businesses to adopt corporate water stewardship via Business in Water Stewardship platforms (e.g., the annual Business for Water Summit or through the affiliated Change the Course communication and social engagement platform).

- Some existing members of the Ceres/World Wildlife Fund (WWF) Ag Water Challenge have value chains within the Colorado River Basin and Southern California.¹¹ These include Danone North America (formerly WhiteWave Foods), Kellogg, PepsiCo, and General Mills, all companies known to engage in water stewardship practices globally. These companies may also be able to use their buying influence to help small- and medium-sized enterprises (SMEs) to adopt water stewardship approaches.
- More than 10,400 hotels contribute information to the Cornell Hotel Sustainability Benchmarking Index regarding their energy and water use, as well as greenhouse gas emissions. This information can be useful in assessing the efforts of the hotel industry regarding water conservation. Many current members operate within Colorado River Basin states, such as Hilton Worldwide, Hyatt Hotels Corporation, InterContinental Hotels Group, Marriott International, and MGM Resorts International. Many of these hotels overlap with the tourism-sector platform International Tourism Partnership, which promotes industry best practice for water stewardship. Members could become leading actors for other smaller hospitality businesses to benchmark against

using peer performance to drive uptake of water stewardship. One example includes a partnership between Coca-Cola, BWS, and Starwood (now part of Marriott International) to engage guests with water awareness and stewardship activities on hotel properties.¹²

Each year, thousands of companies report their greatest perceived water-related risks to CDP, a global non-profit environmental disclosure platform for investors, companies, and cities. Using this corporate reporting database, we identified 42 companies that are known to have operations in the Basin. A summary of their self-reported information is provided in the section below to illustrate the specific challenges they face in the Basin and their water stewardship responses.

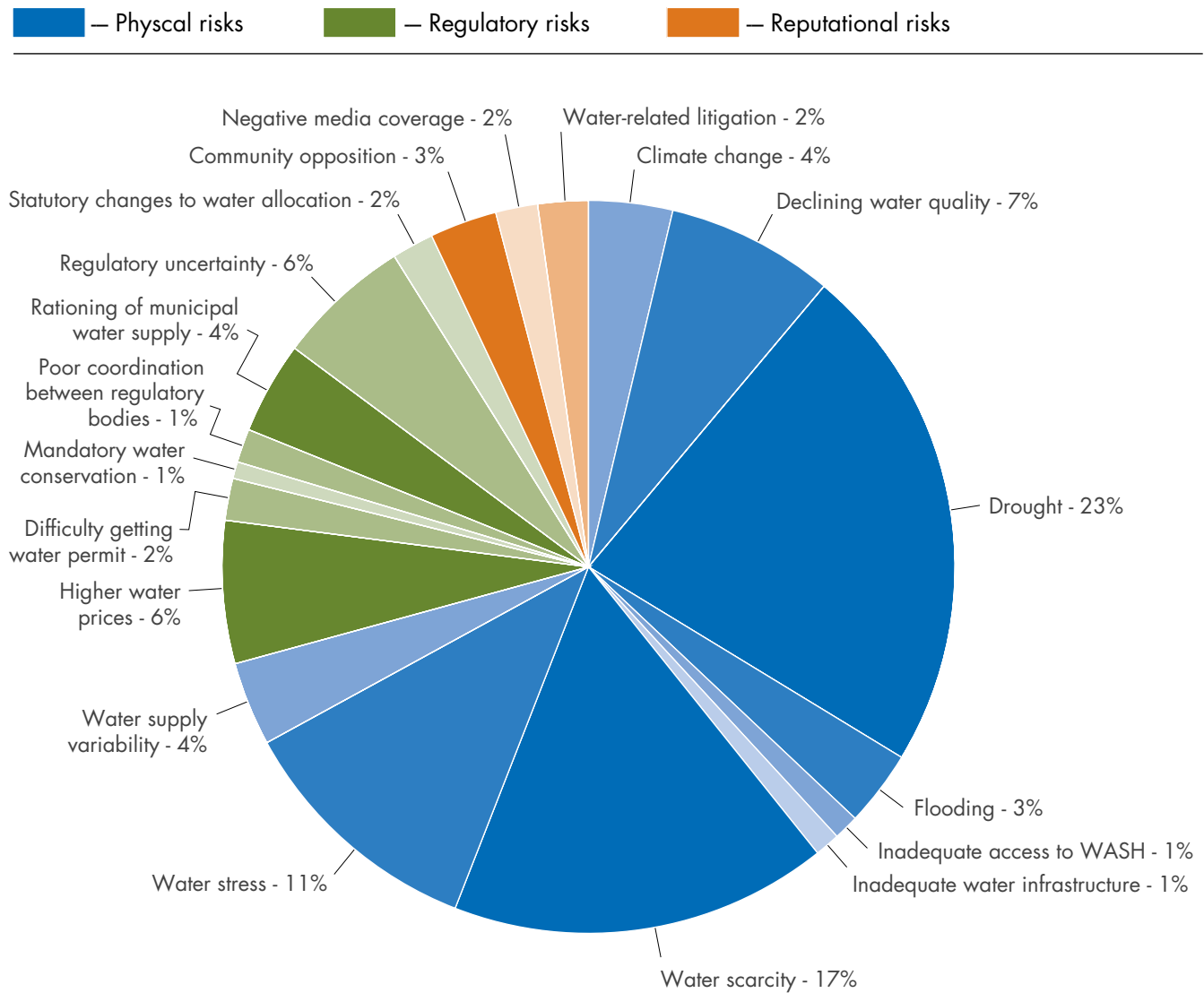
Our analysis indicates that there are several key drivers for the adoption of water stewardship practices by companies in the Basin. Between 2014 and 2018, an average of 21 businesses reported that the physical risks of drought and water scarcity were the most concerning water-related risks to their operations in the region (Figure 2), potentially resulting in higher operating costs and water supply or production disruption. Regulatory risks, such as regulatory uncertainty leading to water restrictions, were also reported. Companies also reported reputational concerns or risks including litigation, community opposition, and negative media coverage. While potential negative impacts from water were reported across all industries, agricultural-related companies, like food and beverage companies, and manufacturers reported the greatest impacts. These potential impacts have driven companies to adopt strategies in response to managing these risks.

11 Ceres and World Wildlife Fund, "Ceres/WWF Ag Water Challenge," 2019. Retrieved from <https://www.ceres.org/our-work/water/water-and-agriculture/cereswwf-agwater-challenge>.

12 GreenBiz, "How Corporations are Changing our Future," February 01, 2017, Retrieved from <https://www.greenbiz.com/article/how-corporations-are-changing-our-freshwater-future>.

Figure 2.

Business Risks Reported by Companies for the Colorado River Basin Between 2014 and 2018



Source: CDP

Our analysis also shows that there are still some companies within the technology and specialized retail (e.g., pet care) sectors who may be unaware of the water challenges in the Colorado River Basin, reporting that they have not identified water risks in their operating locations. While there are no obvious patterns across specific industries, this demonstrates that continued education is needed within the business community around water

challenges in the Basin, water-related risks to business, and the need for action.

Companies are implementing a variety of response strategies to manage their water-related risks. These include updating their internal strategic plans to manage water risks, disclosing water-related data and information to investors and other stakeholders, and implementing operational

water strategies. For example, General Mills has developed a phased approach for developing and implementing watershed healthy strategies in eight priority watersheds, which were identified based on a risk assessment of key product ingredients (see Box 1).

Likewise, Caesar's Entertainment—concerned that water rationing would affect their customers' experience and ultimately reduce revenue—recognizes they may need to adjust their operational strategy and make major capital investments in graywater systems, new wells, xeriscaping, and other new technologies (see Box 2).

According to data from CDP, companies operating within the Basin are setting measurable water targets, such as reduction in total water withdrawals or percent increase in overall water use efficiency, as part of their water stewardship strategy. However, it is unclear the extent to which companies are applying water reduction targets to their operations within the Basin. In a recent assessment, BWS analyzed 67 companies in the food and beverage, hospitality, energy, and technology sectors based in Arizona and Colorado and found that companies were engaging in water stewardship but few had quantified goals, and even fewer tracked the volumetric outcomes of their efforts.¹³ BWS concluded that it was difficult to understand commercial and industrial water use within or across water utilities and industry sectors because the data are disaggregated, organized differently between utilities, not granular at the facility scale (little sub-metering), and not usually publicly available at the facility scale.

Some companies are setting qualitative goals in several areas, such as engaging with their agricultural suppliers or investing in watershed

Box 1

Management of Water Risks as Part of a Business Strategy

"Water issues are local, so we take a risk-based approach to address the specific challenges facing targeted geographies. We follow our four-phase approach to develop and implement watershed health strategies in eight priority watersheds across our worldwide operations. Five of those watersheds are in phase 2 (analysis and action planning), two are in phase 3 (collaboration) and one has advanced to phase 4 (transformation). To determine locations, in 2016 we updated a risk assessment of the watersheds that support our business globally. We assessed 15 key ingredients in 36 sourcing regions and 66 facilities (including 17 supplier partners), covering 41 watersheds globally." (*General Mills, public CDP water response, 2018*)

management and restoration. These goals suggest a recognition from companies that they must engage other stakeholders outside their facilities to manage water-related risks. For example, PepsiCo stated in their 2017 CDP response that:

"[Our] global strategy is implemented through focusing on watershed management, conserving water within our operations, reducing water use in our agricultural supply chain, promoting access to water and advocating for strong water governance within communities. We are implementing this strategy now in the Colorado River Basin through our partnership with The Nature Conservancy [TNC]. In this program, we partner with TNC on conservation activities

¹³ Business for Water Stewardship, 2018.

Box 2**External Drivers Influencing Corporate Water Decision-Making**

"If Southern Nevada Water Authority (SNWA) and Las Vegas Valley Water ration water because of increased water stress, there will be a large increase in cost and a new set of voluntary or mandatory water stewardship goals. To exceed our reduction goal of 25 percent by 2025 we will need to outlay new capital and work closely with SNWA on their plans. If water rationing encroaches on our customer's experience, this would pose a substantive risk to revenue. Therefore, we would need to consider a vast capital project to develop massive graywater systems, new wells, xeriscaping, and other new technologies to continue to provide our current services... Time-frame for response implementation: less than 5 years. Effectiveness of response: medium, facilities would require complex installs. Feasibility of preventing financial or operational impacts: low, existing building infrastructure was not designed with this in mind." *(Caesar's Entertainment, public CDP water response, 2017)*

within the Colorado River watershed as well as supporting irrigation efficiency improvements to reduce demand for water in this area. These efforts support both water risk mitigation and enhance PepsiCo reputation."

Companies reported cost savings and water efficiency improvements as the primary water-related business opportunities or value that emerge from setting water-related targets, followed by improved brand reputation, improved community relations, and continuation of a social license to operate.

The data also suggest there is a nascent awareness among companies of the overlap between water and energy, with climate change adaptation reported as a motivation for setting water targets for the first time in 2018. Twelve companies identified linkages or trade-offs between energy and water in terms of business risks and opportunities. This demonstrates that some companies operating in the Basin are making connections between water and other business environmental issues.

SECTION 2: KEY COMPONENTS OF CORPORATE WATER STEWARDSHIP

THIS SECTION lays out several key components of corporate water stewardship that can serve as “entry points” for potential funders to scale their impact (Figure 3). These are broken into two major categories: (1) assessment of water-related risks and opportunities, and (2) water stewardship actions. This section describes each major category, including its relevance for the Basin, as well as drivers of and barriers to greater uptake. We also provide information on cross-cutting themes that are relevant across the major categories and weave water into other material issues to maximize positive impacts and account for trade-offs (termed “Nexus Strategies”), such as the water-energy nexus, nature-based solutions, and a multi-benefit approach to water management.

Assessment of Water-Related Risks and Opportunities

A robust assessment of water-related risks and opportunities is needed for companies to make informed decisions about where and how to address those risks. Such an approach allows the company to plan and engage proactively rather than reactively. As shown in Figure 4, risks can be driven by the company operations, i.e., “within

the fence-line,” as well as by conditions within the river basin, i.e., “beyond the fence-line.” A robust risk assessment includes risks and uncertainties that might influence or affect business activities across the entire value chain. Understanding how these risks are connected can help a company understand the solution(s) to manage that risk. For example, they may set short-term water efficiency targets at the facility level to manage current water restrictions, but also engage with a water management authority to plan for future water scarcity in the mid- to long-term. It also helps a company think about the stakeholders with whom they might engage, such as water service providers or local communities.

The most basic assessment involves an evaluation of water risks across the company’s operations. This can be done by using global tools, such as the World Resources Institute’s (WRI) Aqueduct Risk Atlas tool or the WWF’s Water Risk Filter.^{14,15} These tools can help companies prioritize locations and opportunities for action and can be supplemented

14 Aqueduct’s Water Risk Atlas maps water risks such as floods, droughts, and stress, using open-source, peer-reviewed data. See <https://www.wri.org/resources/maps/aqueduct-water-risk-atlas>.

15 The Water Risk Filter is an online tool developed by WWF and the German Development Finance Institution DEG to allow users to explore, assess, and respond to water risks. See <https://waterriskfilter.panda.org/>.

Figure 3.

Entry Points for Scaling Water Stewardship in the Colorado River Basin

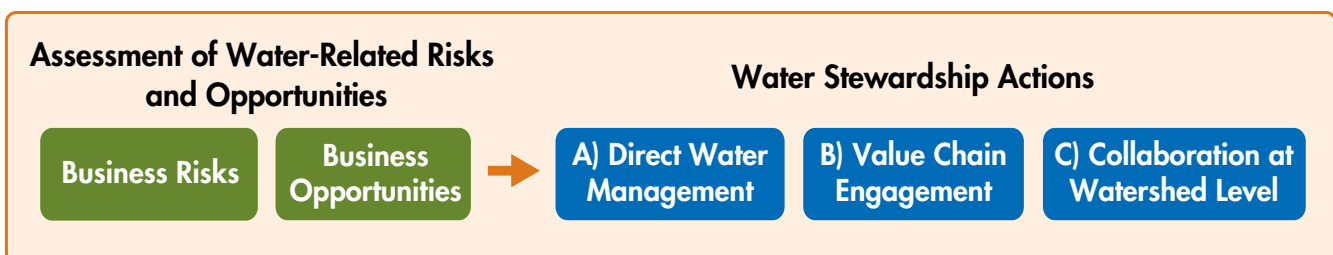


Figure 4.**Basin-Level Risk and Company Water Risk Interaction**

Source: CEO Water Mandate



with local information from facilities or other business functions like purchasing or sustainability departments. Resources are available to help companies conduct more in-depth, watershed-scale risk assessments, such as the Alliance for Water Stewardship (AWS) Standard or recent guidance on setting site-level water targets informed by catchment context.^{16, 17}

In addition to identifying ways to mitigate risk, a robust assessment will also look at the potential for business opportunities or value creation. As described in Section 1, companies reported cost savings and water efficiency improvements as primary water-related business opportunities, followed by improved brand reputation, improved community relations, and continuation of a social license to operate. Some companies may also

be able to provide water-related products and services. An opportunity assessment can help a company decide where and how to act to maintain their business as well as any opportunities to grow their business.

Relevance to the Colorado River Basin

Given the existing water challenges in the Basin, local companies may not have access to sufficient water for current and/or future production without adapting in some way. For example, recent negotiations within Arizona regarding the allocation of water shortages among water users, pursuant to the Drought Contingency Plan, highlighted the potential risks associated with continued drawdown of Lake Mead and the threat of more frequent and more severe water shortages. A robust assessment of water-related risks and opportunities that takes this into account will help companies to identify their best options for adapting to restrictions on water usage in the Basin, such as through water-efficient practices (in direct operations), engaging with their value chain to reduce their water footprint, or contributing to the health of their local watershed.

16 "The AWS Standard 2.0.," Alliance for Water Stewardship. Retrieved from <https://a4ws.org/the-aws-standard-2-0/>.

17 CEO Water Mandate, *Setting Site Water Targets Informed by Catchment Context: A Guide for Companies* (UN Global Compact CEO Water Mandate, Pacific Institute, CDP, The Nature Conservancy, World Resources Institute, WWF, UNEP/DHI Partnership Centre for Water and Environment, August 2019). Retrieved from www.ceowatermandate.org/site-water-targets.

Drivers for Companies to Adopt this Activity

1) External pressures linked to negative impacts and benchmarking. The biggest recent motivation for corporate action on water was the realization that although the cost of water is relatively low, there can still be material costs to their businesses from water-related risks.¹⁸ Increasingly investors—and other stakeholders including customers and local communities—exert external pressure on companies to assess their water risks and explore opportunities for increased business value and manage reputational risk. Ceres Aqua Gauge, for example, is a tool that allows investors to “scorecard a company’s water management activities against detailed definitions of leading practice.”¹⁹ Sector benchmarking, such as the Beverage Industry Environmental Roundtable (BIER) water and energy benchmarking studies²⁰ or the Cornell Hotel Sustainability Benchmarking Index²¹ can instill a sense of competition among companies, as well as provide information for company stakeholders to pressure companies to act.

18 Developed by Ecolab in partnership with Trucost and Microsoft, the Water Risk Monetizer provides actionable information to help businesses understand water-related risks and quantify these risks in financial terms to inform business decision-making. See <https://www.ecolab.com/sustainability/water-risk-monetizer>.

19 Ceres, “Ceres Aqua Gauge: A Comprehensive Assessment Tool for Evaluating Corporate Management of Water Risk,” October 18, 2011. Retrieved from <https://www.ceres.org/resources/tools/ceres-aqua-gauge-comprehensive-assessment-tool-evaluating-corporate-management>.

20 Beverage Industry Environmental Roundtable, *2018 Water and Energy Use Benchmarking Study* (2018). Retrieved from <https://www.bierroundtable.com/publication/2018-water-and-energy-use-benchmarking-study/>.

21 Greenview, “Cornell Hotel Sustainability Benchmarking Index.” Retrieved from <https://greenview.sg/chsb-index/> (accessed October 25, 2019).

2) Change in company mindset. In addition to external motivators, the internal company mindset and culture are key factors in the success of a company’s water stewardship strategy.²² Company culture around the perceived value of water (as opposed to its cost) has huge implications for sustainable water management decision-making. While imbuing a water stewardship ethic into company culture is no easy task, it sometimes only takes one or two passionate employees to motivate a change in company mindset and make the internal business case for changing existing practices.

3) Outreach through reporting platforms. Widespread disclosure of company actions can also provide examples of good practice for other companies to replicate. Disclosure of water data underpins better internal company decision-making.²³ Comparison of performance data often encourages companies to improve and keep pace with their peers and competitors.

Barriers to Widespread Company Uptake of this Activity

1) Lack of clear and accessible data for decision-making. One of the greatest barriers to scaling sustainable corporate water management practices is a lack of water use data to compare their efforts against competitors’. This contributes to a lack of action by companies who might think they are performing well, and may also negatively impact the ability to make a successful internal business case

22 Edward E. Lawler III, “Corporate Stewardship,” *Forbes*, September 22, 2015. Retrieved from <https://www.forbes.com/sites/edwardlawler/2015/09/22/corporate-stewardship/#4dd1d2bcb257>.

23 CEO Water Mandate, *Corporate Water Disclosure Guidelines* (September 2014). Retrieved from <https://ceowatermandate.org/disclosure/>.

to take action on water management. A lack of easily accessible comparable data can also hinder efforts by external stakeholders like investors, communities, or civil society to educate or apply pressure on companies to adopt sustainable water management practices. While this data exists for a subset of companies, such as those reporting to CDP or participating in sector-specific benchmarking, it is incomplete, incomparable, or lacking for most companies.

WATER STEWARDSHIP ACTIONS

Once companies have identified their risks and opportunities, they decide on strategies for action. This can take many forms depending on a company's sector, location(s), resources, and level of maturity. But corporate water stewardship action generally falls into three main categories: water management in direct operations, value chain engagement, and collaboration in local watersheds.

Water Management in Direct Operations

The management of water use in business operations within the company's direct control is often the starting point for action for a company embarking on a water stewardship strategy, and is typically based on their analysis of water risks and opportunities.²⁴ The nature and ambition of a company's direct water management strategies are typically informed by decisions made at the corporate level (as opposed to facility level), though there are exceptions. As companies improve at managing water, they continuously monitor water use, use less water, and treat wastewater to

meet regulations and avoid fines.^{25, 26} Examples of companies excelling in direct water management include Hilton's "Lightstay" environmental performance measurement system across 4,000+ hotels in 100+ countries,²⁷ and Anheuser Busch's investments in water efficiency and reuse in brewing and bottling processes that have nearly cut their water use in half over the past decade.²⁸

Relevance to the Colorado River Basin

In a water-scarce region like the Colorado River Basin, better water management is not only a stewardship activity but also makes business sense. Companies that measure and understand how they use water, where it comes from, and where it goes once it leaves their facilities will in turn have better information to assess their exposure to water-related business risks and opportunities across their whole business.

Drivers for Adoption

1) Cost savings and creation of business value.

Companies can use direct water management to create financial value for their business.²⁹

24 CEO Water Mandate, *The Water Stewardship Journey* (2019). Retrieved from <https://ceowatermandate.org/course/101-the-basics/lessons/the-water-stewardship-journey/>.

25 CEO Water Mandate, *Water Stewardship at Your Facilities* (2018). Retrieved from <https://ceowatermandate.org/course/101-the-basics/lessons/water-stewardship-at-your-facilities/>.

26 In regions where access to safe drinking water and sanitation is insufficient, providing basic water and sanitation services to employees onsite also falls within the purview of direct water management.

27 "Hilton Worldwide: Lightstay," Environmental Leader, 2019. Retrieved from <https://www.environmentalleader.com/products/hilton-worldwide-lightstay/>.

28 "Anheuser-Busch Announces U.S. 2025 Sustainability Goals," Anheuser-Busch, April 17, 2018. Retrieved from <https://www.anheuser-busch.com/newsroom/20071/04/anheuser-busch-announces-u-s--2025-sustainability-goals.html>.

29 Will Sarni and Hugh Share, "From corporate water risk to value creation," Global Water Intelligence, August 2019. Retrieved from <https://www.globalwaterintel.com/news/2019/31/from-corporate-water-risk-to-value-creation>.

In Section 1, companies reported cost savings and improving water efficiency as the primary water-related business opportunities. Opportunities for creating business value are slightly different for companies whose core business activities include provision of products and services to help other companies manage their water use. Ecolab provides water management products and guidance to help facility managers ascribe a financial cost to their water risks and select appropriate strategies to manage them;³⁰ Ericsson provides technology and data visualization platforms to support real-time water resource monitoring.³¹ In a unique example of sustainability driving business value, Dutch bank ING agreed upon a specialized loan to Xylem, a water technology company, with repayment conditions based on Xylem's Environmental, Social and Governance (ESG) performance, including water. ING is offering Xylem large discounts on their loan if they score highly, providing motivation for them to drive reductions in water use, both in their own operations and through providing technology and services enabling other companies to improve water use efficiency.³²

30 The Ecolab Smart Water Navigator is an online tool that helps companies reduce water usage, energy, and cost at the facility level. See ecolab.com/sustainability/smart-water-navigator.

31 CEO Water Mandate, *Using smart technology to monitor Stockholm's water systems: an Ericsson case study* (2017). Retrieved from https://ceowatermandate.org/wp-content/uploads/2017/11/BAFWAC_-_Ericsson_11.2.pdf.

32 Xylem, "Xylem Signs First-of-its-Kind Revolving Credit Facility in U.S. to Couple Interest Rates with Sustainability Performance," March 5, 2019. Retrieved from <https://www.xylem.com/en-us/about-xylem/newsroom/press-releases/xylem-signs-first-of-its-kind-revolving-credit-facility-in-u.s.-to-couple-interest-rates-with-sustainability-performance/>.

Barriers to Uptake

1) Lack of awareness about the benefits of sustainable water management practices.

It can be difficult to convince companies to adopt direct water management, especially for water efficiency, because water is so cheap relative to the cost of achieving the reductions in water use. Greater awareness is needed to help companies understand the broader benefits of sustainable water management practices, including a social license to operate or maintaining long-term production output in the face of looming water shortages. Much of this awareness will come through the completion of more robust water risk assessments.

VALUE CHAIN ENGAGEMENT

Value chain engagement is where companies and their key suppliers or customers work together on water issues that affect them. For many companies, this is often the next step in their water stewardship journey after direct water management. For companies reliant on inputs from agriculture, such as the food and beverage sector, the largest water use is typically in their supply chain. For example, agricultural production accounts for 85 percent of General Mills' water footprint.³³ Given that agriculture is the largest user of water globally and in the Basin, this is often the most crucial step for agriculture-reliant companies mitigating water-related risks. For other companies, such as Levi Strauss, the more significant water footprint may be in customer end-uses (in this case, washing jeans).³⁴

33 General Mills, *2017 Global Responsibility Report, Chapter 3: Water Stewardship* (2017). Retrieved from <https://globalresponsibility.generalmills.com/2017/HTML1/general-mills-global-responsibility-2017-0052.htm>.

34 Levi Strauss & Company, "No, You Don't Have to Wash Those Jeans - Really!" August 25, 2018. Retrieved from <https://www.levistrauss.com/2018/01/25/no-dont-wash-jeans-really/>.



Source: Michael Cohen

Cattle in Crested Butte, Colorado. Agriculture consumes 70 percent of Colorado River water; supply chain engagement with agricultural suppliers offers considerable potential to improve the region's water security.

Value chain engagement can be vertically integrated via a direct working relationship between customer and supplier. For example, the nonprofit Sustainable Conservation has relationships with multinational corporations with supply chains in California's Central Valley and plays a facilitating role in the development of supplier-customer relationships to tackle water efficiency and pollution problems.³⁵ Value chain engagement may also be a response to risk for a river basin that serves as an agricultural center. The Global Agriculture Alliance helps bring together agricultural producers in regions around the world to collaborate on sustainability projects, such as a recent project in the Upper Mississippi River Basin. That multi-stakeholder initiative includes Bayer, Cargill, General Mills, Kellogg Company, Land O'Lakes, McDonald's, PepsiCo, Unilever, and Walmart, as well as NGOs such as

³⁵ "Our Work," Sustainable Conservation. Retrieved from <https://suscon.org/our-work/> (accessed October 25, 2019).

The Nature Conservancy (TNC), World Wildlife Fund (WWF), and Environmental Defense Fund.³⁶

The mining sector is particularly water-intensive and is often the first stage in the value chain for local manufacturing industries and power generation companies. The International Council on Metals and Mining (ICMM) has developed a water stewardship framework that adopts a catchment-based approach to water management and all members are required to adopt it.³⁷ It promotes proactive and inclusive engagement with other water users, including customers (e.g. power generation companies).

Technology companies can also be exposed to water risks in their supply chain, through outsourcing to data centers or through the supply of key microelectronic components for their products. Microelectronics businesses like Apple often rely on complex manufacturing supply chains. As these supplier businesses typically cluster in industrial parks, whole industries may face or contribute to local water challenges such as pollution and depletion in one location. As a result, poor local water conditions (and related regulatory enforcement) can be major risks to business.³⁸ Apple's Clean Water Program supports suppliers in conserving and reusing water and cleaning up water discharges. In 2018, two Apple suppliers achieved AWS certification, including

³⁶ Global Agri-business Alliance, *Cross-sector action to protect the Upper Mississippi River Basin* (nd). Retrieved from <https://globalagribusinessalliance.com/wp-content/uploads/2018/11/Bayer-CaseStudy-04-v3.pdf>.

³⁷ International Council on Mining and Metals, *Water Stewardship Framework* (2019). Retrieved from <https://www.icmm.com/water-stewardship-framework>.

³⁸ "Guiding supplier stewardship: Apple's approach to water use in microelectronics," SIWI, August 26, 2019. Retrieved from <https://www.worldwaterweek.org/event/8653-guiding-supplier-stewardship-apples-approach-to-water-use-in-microelectronics>.

the first gold certificate in the electronics industry.³⁹

Relevance to the Colorado River Basin

Value chain engagement leverages the business customer-supplier relationship to promote better water management practices by both the customer and the supplier. Given that agriculture consumes 70 percent of Colorado River water, this corporate water stewardship activity has much potential for positive impact on the region's water security.⁴⁰ Corporate incentivization and engagement in suppliers' water management improvements from industries like the technology sector could yield significant water savings and more equitable distribution of water resources within the Basin. The mining sector may be able to make valuable contributions through their commitment to catchment-based water management. However, many businesses struggle to effectively engage value chains on water since they do not control (and in some cases exert little influence over) value chain partners and operations.

Drivers for Adoption

- 1) **Securing business continuity.** Food & beverage, apparel, and technology companies rely on the productivity and resilience of their supply chains. Mining companies rely on continued demand for their products. Engaging with suppliers and customers to identify and act on future water-related risks

that could affect them both will help to ensure business continuity.

- 2) **Potential cost savings for suppliers.** For companies with major agricultural supply chains or microelectronics or data center suppliers, the largest potential for water savings will likely lie with their suppliers. Implementation of water efficiency or conservation measures may lead to cost savings in both water and energy for suppliers and may allow them to be more competitive in their pricing of products and/or improve their profit margins.

Barriers to Uptake

- 1) **Insufficient supplier data and education to identify potential partnerships.** Research undertaken by CDP and the German international development agency (GIZ) concluded that there is huge potential to scale up action on water through company-supplier engagement.⁴¹ However, insufficient supplier data and education are known barriers to action. Supply chains can be complex, with multiple processors, aggregators, or other intermediaries between a grower and the purchasing corporation for example. Without complete data, it is challenging to identify where a company should invest in water projects, or even to identify suppliers.
- 2) **Lack of access to starting capital to make changes in water management practice.** Another barrier is access to capital for suppliers to undertake water efficiency or

39 Apple, *Supplier Responsibility 2019 Progress Report* (2019). Retrieved from https://www.apple.com/supplier-responsibility/pdf/Apple_SR_2019_Progress_Report.pdf.

40 Michael Cohen, Juliet Christian-Smith, and John Berggren, *Water to Supply the Land: Irrigated Agriculture in the Colorado River Basin* (Pacific Institute, 2013). Retrieved from <https://pacinst.org/publication/water-to-supply-the-land-irrigated-agriculture-in-the-colorado-river-basin/>.

41 CDP & Deutsche Gesellschaft für Internationale Zusammenarbeit, *Overcoming Barriers to Effective Corporate Water Risk Management* (2017). Retrieved from <https://6fefcbb86e61af1b2fc4-c70d8ead6ced550b4d987-d7c03fcdd1d.ssl.cf3.rackcdn.com/cms/reports/documents/000/002/074/original/Overcoming-barriers-to-effective-corporate-water-risk-management-CDP-Water-GIZ-May-2017.pdf?1495458358>.

other changes in water management. Even if there is a direct relationship between a supplier and purchasing company and potential incentives for improved water practices exist, lack of access to up-front capital and financing can still impede action.

- 3) State policies that impede water conservation and stewardship.** In some instances, policy changes will be necessary to fully achieve supply chain water reductions - for example, “use it or lose it” provisions in many western states provide a disincentive for supply chain irrigators to conserve water. In these cases, companies can use their collective voice to directly advocate for subtle policy changes that minimize disincentives to supply chain water conservation.

COLLABORATION AT THE WATERSHED LEVEL

As companies mature in their understanding of water stewardship and the water-related risks they face, they appreciate that actions taken within operations and value chains cannot by themselves fully mitigate water risks to their business or solve the watershed challenges driving those risks. When companies both come to this realization and feel prepared for meaningful engagement with external stakeholders on water, they are ready for collaboration at the watershed level. This collaboration is often called “collective action” in the corporate water stewardship arena.⁴² It entails a coordinated approach to water resource management among companies, civil society, communities, and the public sector, for the benefit of all water users in that watershed or region.

⁴² CEO Water Mandate, Ross Strategic, Pacific Institute, Pegasys Strategy and Development, Water Futures Partnership, *Guide to Water-Related Collective Action*. (CEO Water Mandate, 2013). Retrieved from <https://ceowatermandate.org/collectiveaction/>.

This collaboration typically happens through on-the-ground projects, or through collective policy engagement.

On-the-Ground Projects

Leading companies are investing in watershed health projects in the watersheds where they operate or source from in order to reduce their water-related risks. For example, Procter & Gamble advertised the locations of their water-stressed facilities and invited others in those regions to join them in working towards shared watershed goals.⁴³ This collaboration requires at least collaboration with a local implementing partner and—for the more robust projects—also includes government agencies, environmental consultants, NGO experts, and a facilitating intermediary organization.



Source: Vidar Nordli-Mathisen, Unsplash

Leading companies are investing in watershed health projects in the watersheds where they operate or source from in order to reduce their water-related risks.

⁴³ Greg Koch and Shannon Quinn, “Partnering to Protect Water,” *GreenBiz*, November 27, 2018. Retrieved from <https://www.greenbiz.com/article/partnering-protect-water>.

Many of the more sophisticated companies in the water stewardship space have set “replenishment,” “water-balancing,” or “restore” goals, meaning they have committed to return some percentage (often 100 percent is the target) of their water consumption back to the watershed from which it came. Typically, this is achieved through local projects that increase stream flows, recharge groundwater, or otherwise increase local water supplies. Some of the well-known companies with replenishment (or some similar term) goals include Coca-Cola, PepsiCo, Diageo, Intel, and Microsoft.^{44, 45, 46, 47, 48}

There are many forms that these projects can take. One prominent and popular vehicle is TNC’s Water Fund model. Leading companies are investing in these water funds as a way to meet their replenishment targets, mitigate water risk, and improve the health of the watersheds where they have a presence. In Grand Valley, Colorado, TNC is testing a large-scale approach to a water fund with irrigators, municipalities and other partners to deliver the co-benefits of 1) reducing risk of regional water shortages, 2) providing

certainty to water users, and 3) providing instream benefits for river ecosystems.⁴⁹

Another example of an innovative watershed collaboration is the Verde River Exchange.⁵⁰ Working with Business in Water Stewardship, companies like Microsoft, Intel, PepsiCo, Coca-Cola, Waste Management Inc., and Cox have all funded irrigation modernization projects in Arizona’s Verde River basin to help achieve local water benefits. This type of investment can help sustain water supplies and make water available for river habitat and other public needs.

Multi-stakeholder platforms can assist in scaling of this type of water management approach through facilitation and raising awareness. The California Water Action Collaborative (CWAC), for example, is a platform for diverse stakeholders to pursue collective action projects to aid California’s water security for people, business, agriculture, and nature.⁵¹ The platform drives corporate water stewardship actions to align with state and global goals across different issues including water quality, land management, and forest fire prevention. This type of platform, not unlike BWS, can help to increase financial and political support for watershed health projects.

Policy Engagement

Corporate engagement with public policy has traditionally been understood as direct policy

44 The Coca-Cola Company, “Collaborating to Replenish the Water We Use,” August 29, 2018. Retrieved from <https://www.coca-colacompany.com/stories/collaborating-to-replenish-the-water-we-use>.

45 PepsiCo, “Water Stewardship,” 2019. PepsiCo. Retrieved from <https://www.pepsico.com/sustainability/water> (accessed October 25, 2019).

46 Diageo, *Diageo’s Water Blueprint* (2018). Retrieved from https://www.diageo.com/PR1346/aws/media/6072/74125_diageo_water_blueprint_2018-06-28_v2.pdf.

47 Intel Corporation, “Intel and the Environment: Water Restoration,” 2018. Retrieved from <https://www.intel.com/content/www/us/en/environment/water-restoration.html> (accessed October 25, 2019).

48 Paul Fleming, “Microsoft works with Bonneville Environmental Foundation and Trout Unlimited to support water replenishment in Washington,” Microsoft, October 26, 2018. Retrieved from <https://blogs.microsoft.com/green/2018/10/26/microsoft-works-with-bonneville-environmental-foundation-and-trout-unlimited-to-support-water-replenishment-in-washington/>.

49 The Nature Conservancy, *Tackling Water Shortage – The Colorado River Basin* (2019). Retrieved from <https://www.nature.org/en-us/about-us/where-we-work/priority-landscapes/colorado-river/tackling-water-shortage/>.

50 Verde River Exchange, “Friends of the Verde River.” Retrieved from <https://verderiver.org/verde-river-exchange/> (accessed October 25, 2019).

51 “Stewardship Through Action,” California Water Action Collaborative, 2019. Retrieved from <http://cawateraction.org/> (accessed October 25, 2019).

Box 3**Guide to Responsible Business Engagement in Water Policy**

“Responsible” business engagement in water policy assumes adherence to five key principles:

- 1) Actions are motivated by a genuine interest in efficient, equitable, and sustainable water management;
- 2) Activities do not infringe upon, but rather support, public sector efforts;
- 3) Engagement promotes inclusiveness and equitable, meaningful partnerships;
- 4) Activities proceed in a coherent, proactive manner that recognizes the interconnectedness of water and many other policy areas; and
- 5) Full transparency and accountability are practiced.

Adapted from: *Guide to Responsible Business Engagement in Water Policy*. UN Global Compact CEO Water Mandate, Pacific Institute, WWF-International, Water Witness International, Pegasys Strategy & Development. (2010). *CEO Water Mandate*. Retrieved from <https://ceowatermandate.org/policyengagement/>.

advocacy and lobbying. The CEO Water Mandate, however, defines it more broadly in its guide to responsible business engagement in water policy.⁵² Business engagement in public water

52 UN Global Compact CEO Water Mandate, Pacific Institute, WWF-International, Water Witness International, Pegasys Strategy & Development, *Guide to Responsible Business Engagement in Water Policy* (CEO Water Mandate 2010). Retrieved from <https://ceowatermandate.org/policyengagement/>.

policy encompasses any initiative that involves interaction with government entities, local communities, and/or civil society organizations with the goal of advancing:

- 1) Responsible internal management of water resources within direct operations and supply chains in line with policy imperatives (i.e., regulatory compliance); and
- 2) The sustainable and equitable management of the catchment in which companies and their suppliers operate.

An early example of public policy engagement in the Basin is the Clear Creek Watershed Forum, a collective watershed movement which stemmed from water quality and quantity issues in Clear Creek in the 1980s, in which Molson Coors and other businesses participate.⁵³ It is targeted at engaging a broad range of interested parties (including municipalities) in efforts to identify, fund, and implement watershed-improvement projects. On a state level, the collective voice of companies affiliated with BWS were instrumental in getting the DCP passed in Arizona in 2019. Furthermore, the members of the Ceres ‘Connect the Drops’ corporate public policy platform were instrumental in getting important California water legislation passed: AB 1668 and SB 606, which will help make water conservation a way of life in California, and AB 1755, which will ensure the state has necessary water data management systems in place to better manage water supplies in the future.⁵⁴

53 CEO Water Mandate, “Molson Coors & Clear Creek Watershed Forum,” 2011. Retrieved from <https://ceowatermandate.org/resources/molsoncoors-clear-creek-watershed-forum-consulting-stakeholders-to-frame-watershed-improvement-priorities-2011/>.

54 Ceres, “Connect the Drops,” Retrieved from <https://www.ceres.org/initiatives/connect-the-drops> (accessed October 25, 2019).

Relevance to the Colorado River Basin

Collaboration on local projects—whether it is motivated by a replenishment target and implemented through a water fund or not—allows companies to leverage the power of multiple stakeholder groups to enact positive changes in water resources where they are causing impacts and facing risks. It also requires coordination, compromise, and relinquishment of control, as compared to water stewardship actions within operations or possibly, value chains.

Public policy engagement allows companies to use their economic leverage (jobs and taxes) to inform and contribute to local, state, or Basin-scale policy conversations on water management. It also helps companies to better understand and plan for their future water risks by understanding the management plans for the Basin and how that may impact their access to local water resources.

Drivers for Adoption

- 1) **Management of water-related risk.** Even after implementing best practice water stewardship within their facility walls, fully addressing water-related risks to business ultimately requires improved public policy and strong public institutions managing water resources, which requires beyond-fence-line engagement. Additionally, as competition increases for water resources in water-stressed regions, companies are becoming concerned about reputational impacts to their business in the form of negative press attention, consumer sentiment, or litigation. Participating in partnerships will help companies manage this potential reputational risk and improve local water security.
- 2) **Sharing and solving a common water challenge.** All parties sharing water resources benefit from efforts to reduce water-related risks through common solutions. These

typically include a focus on long-term water security, providing water for basic human and environmental needs, and adapting to changes and uncertainties in water availability. Leading companies recognize that they have a responsibility to contribute to solving water challenges in regions where they have presence, impact, and influence.

3) **Corporate water replenishment targets.**

As discussed earlier in this section, leading companies are often driven to invest in collaborative on-the-ground projects by the need to fulfill their commitment to replenish or restore their water consumption. The more companies adopt these goals, the more demand (and thus more investment dollars) there will be for watershed health projects.

Barriers to Uptake

1) **Lack of knowledge and capacity.**

Collaborative action at the watershed scale is an advanced water stewardship strategy, and not all companies are ready, willing, or able to engage meaningfully in multi-stakeholder actions. However, as more companies do engage, peer companies feel pressure to join and learn from those companies' experiences, slowly increasing uptake.

2) **Limited understanding of public water management.**

Companies may find it challenging to understand and navigate the often-complex web of public entities and agencies responsible for water management. Even if they have the interest and capacity to engage and align with the public sector, they may not know where to begin. An effort currently underway between WRI and the Massachusetts Institute for Technology (MIT) is seeking to address this information gap.⁵⁵

⁵⁵ Colin Strong, Paul Reig, Julian Kobel, Cindy Noe, *Mapping Public Water Management by Harmonizing and*

3) Fear of engagement with the public sector.

Companies may fear engaging with the public sector to avoid allegations of lobbying for their own business interests rather than acting in the public or collective interest. Transparency and good communication are required in any private-public engagement or partnership, ideally facilitated by partners from civil society who are directly interested in the issue at hand.⁵⁶

4) Difficulty finding partners and projects.

Without a facilitating organization to help them make connections and navigate the space, companies often struggle to understand when, where, and with whom they should be engaging on projects and policy, and whether their existing investments and water stewardship programs are sufficiently aligned with local public policies on water.

NEXUS STRATEGIES

Business investment in water stewardship is not always cost-effective alone because the value of water is not always reflected in its cost. In addition, addressing water challenges may not be a priority for every company, depending on company culture and the nature of the business. However, water stewardship provides many additional benefits to the company and society—energy, climate change, social equity, human health, and more—in ways companies may or may not be aware of. Highlighting these interconnections to issues that *are* of material interest to a company can help motivate increased adoption of water

stewardship practices. Below are examples of some connections, or nexus strategies, which we see leading companies beginning to integrate into their water stewardship activities.

Water-Energy-Climate Nexus

Water, energy, and climate are intrinsically connected. From a business perspective, this link presents both challenges and opportunities. On one hand, saving water in operations can save energy and reduce vulnerability to droughts and ongoing water scarcity driven by climate change. Investment in projects that protect watershed health can also improve the resilience of communities and ecosystems to extreme events. On the other hand, at times these two issues can be at odds. For example, installing advanced onsite treatment facilities improves water security but could increase energy usage and associated costs, as well as greenhouse gas emissions.

Companies who integrate water, energy, and climate decisions and goals can realize multiple benefits and avoid unintended impacts. For example, Intel combined water and energy efficiency goals at their facilities; they used the green building LEED certification process at their Chandler campus in Arizona and conserved over 6.7 billion gallons of water and became 25 percent more energy efficient.⁵⁷ Similarly, Microsoft invested in advanced cooling technology for their data centers, using less electricity and a fraction of the water used by traditional cooling systems.⁵⁸

Sharing Corporate Water Risk Information (2018). World Resources Institute. Retrieved from <https://www.wri.org/publication/mapping-public-water>.

56 Guy Pegram, Stuart Orr, and Christopher Williams, *Investigating Shared Risk in Water: Corporate Engagement with the Public Policy Process*, World Wildlife Fund and Pegasys Consulting, March 1, 2009. Retrieved from https://www.wwf.de/fileadmin/fm-wwf/Publikationen-PDF/WWF_investigating_shared_risk_in_water.pdf.

57 Brian Sodoma, “Intel Chandler campus has hand in setting global green building standards,” *AZ Central*, May 31, 2017. Retrieved from <https://eu.azcentral.com/story/sponsor-story/intel/2017/05/31/intel-chandler-campus-global-green-building-standards/102359800/>.

58 Brian Janous, “Building world-class sustainable datacenters and investing in solar power in Arizona,” Microsoft, July 30, 2019. Retrieved from <https://blogs.microsoft.com/on-the-issues/2019/07/30/building-world-class-sustainable-datacenters-and-investing-in-solar-power-in-arizona/>.



Source: Maxvis, iStock

Companies who integrate water, energy, and climate decisions and goals can realize multiple benefits and avoid unintended impacts.

This was also paired with installation of solar panels, helping the facility achieve water, energy, and greenhouse gas emission reductions.

There is also a growing movement within the global corporate water stewardship community to highlight water in the international conversation on climate change.⁵⁹ Leading companies have corporate targets on greenhouse gas emissions reductions and are seeking a water corollary.⁶⁰

Nature-Based Solutions

Water is inextricably connected to ecosystem health. Nature-based solutions (NBS) for water management account for this connectivity, hinging on actions that “[apply] the strength,

resources, and abundance of nature to global environmental and social challenges.”⁶¹ In this case, it is about strategies and approaches that align with and support natural processes to address water challenges. Business-as-usual tends to work *against* nature rather than with it, but leading companies are recognizing this and beginning to operationalize NBS.⁶² Common NBS for water might include investment in green water infrastructure, restorative agriculture, or protection of lands that provide important ecosystem services.

Companies’ investments in NBS have the potential to improve the health of a watershed while providing multiple co-benefits – including water supply; climate mitigation and resilience; biodiversity; social, cultural, economic benefits; and more.⁶³ For example, Volkswagen has their largest production facility in Puebla, Mexico, which sources water from a depleted groundwater aquifer underlying the Puebla-Tlaxcala Valley. Volkswagen funded native tree planting and the construction of soakaways and small earthen dams in the upland watershed, increasing aquifer infiltration by four million cubic feet per year.⁶⁴

59 Douglas Baker, Jr, “Let’s make water chapter one in the climate story,” *Ecolab*, September 25, 2019. Retrieved from <https://www.ecolab.com/articles/2019/09/lets-make-water-chapter-one-of-the-climate-story?easylinkbypass=true>.

60 Joel Makower, “Science-based targets look beyond carbon,” *GreenBiz*, April 22, 2019. Retrieved from <https://www.greenbiz.com/article/science-based-targets-look-beyond-carbon>.

61 Marion Potschin, Conor Kretsch, Roy Haines-Young, Eeva Furman, Pam Berry, and Francesc Baró, *OpenNESS Ecosystem Services Reference Book* (2016). Retrieved from <http://www.openness-project.eu/library/reference-book/sp-NBS>.

62 The Nature Conservancy Business Council Natural Infrastructure Working Group, *Strategies for Operationalizing Nature-Based Solutions in the Private Sector* (The Nature Conservancy, 2018). Retrieved from <https://www.nature.org/content/dam/tnc/nature/en/documents/NBSWhitePaper.pdf>.

63 WWAP (United Nations World Water Assessment Programme) and UN-Water, *The United Nations World Water Development Report 2018: Nature-Based Solutions for Water*. (UN Water, 2018). Retrieved from <https://www.unwater.org/publications/world-water-development-report-2018/>.

64 A soakaway is a small earthen pit filled with small rocks or other natural material, which captures stormwater and allows it to soak into the soil and underlying groundwater aquifer.

Additional benefits include reduced hillside erosion, increased carbon sequestration, and biodiversity.⁶⁵

Multi-Benefit Approach to Water Management

A multi-benefit approach to water management can be thought of as the overarching frame for nexus strategies. It allows companies to incorporate or consider their various corporate goals and other environmental, social, and economic considerations of relevant stakeholders when making water-related decisions and investments.

A multi-benefit approach to water management engages with stakeholders to systematically and transparently evaluate the broad benefits and trade-offs of water management options.⁶⁶ This encourages companies to more broadly incorporate environmental, social, and economic metrics, from corporate goals and stakeholder input, into their decision-making and can be applied to any of the steps discussed in this report. For example, water conservation practices can result in water savings, energy and greenhouse gas emissions reductions, and economic savings. Or, when engaging with their supply chain, a company might elect to invest in an on-farm healthy soils initiative, recognizing that soil health improvements provide not only water benefits but may also provide carbon sequestration benefits, crop yield benefits, and

A multi-benefit approach to water management engages with stakeholders to systematically and transparently evaluate the broad benefits and trade-offs of water management options.

more. Finally, if companies take a multi-benefit approach when engaging with public water management, they may be able to support and advocate for policies or management decisions that holistically consider the connections between water and land management decisions, affordable housing, energy use, and other issues important to communities.

Relevance to the Colorado River Basin

Some companies clearly understand the value of water. But in the face of relatively low water prices (compared with energy prices, for example), it is challenging to convince all business sectors to invest in water management if we only consider return on investment from water savings alone. It is easier to make a robust business case for action by drawing connections between water and the other critical social, environmental, and economic issues it touches. This will allow companies to achieve multiple corporate goals and see a greater return on their investment in water management. Companies within the Basin that adopt nexus strategies for water management can broaden their consideration of investment strategies to minimize water risk while providing greater benefits to themselves and society and contributing to water sustainability.

65 Owen Scott, Sandra Fatoric, Robert Merritt, Victoria Fulton Lee, and Danielle Miley, *Engaging the Private Sector in Green Infrastructure Development and Financing: A Pathway Toward Building Urban Climate Resilience* (USAID, October 2018). Retrieved from <https://www.chemonics.com/wp-content/uploads/2019/06/Engaging-the-Private-Sector-in-Green-Infrastructure.pdf>.

66 Sarah Diringer, Anne Thebo, Heather Cooley, Morgan Shimabuku, Robert Wilkinson, and McKenzie Bradford, *Moving Toward a Multi-Benefit Approach for Water Management* (Pacific Institute, 2019). Retrieved from <https://pacinst.org/publication/moving-toward-multi-benefit-approach/>.

SECTION 3: RECOMMENDATIONS FOR SCALING CORPORATE WATER STEWARDSHIP

WATER IS A CRITICAL INPUT for many businesses. The main water challenges in the Colorado River Basin include the overallocation of water, long-term drought, and climate change. Corporate water stewardship provides an opportunity for companies to reduce their water risk and identify new business opportunities while also contributing to broader societal goals, including a flourishing Colorado River system. In this section we examine the opportunities for potential funders to ensure a healthy Colorado River for nature and people through scaling corporate water stewardship.

Corporate water stewardship in the Colorado River Basin is still relatively nascent. Compounding this challenge is the general lack of an enabling environment for water users, including companies, to collaborate on shared water challenges. A handful of companies are implementing some of the water stewardship actions outlined in this report, as evidenced by the overlap of companies working on known water stewardship initiatives in the Basin (see examples in Section 1). Two key strategies for advancing the maturity and reach of

Expand education and outreach, decision-making data, and online starter tools at the global level in support of water stewardship and to facilitate local water stewardship action.

corporate water stewardship in the Basin are to **expand education and outreach, decision-making data, and online starter tools at the global level in support of water stewardship and to facilitate local water stewardship action.** Additional detail on each is provided below.

STRATEGY 1: SUPPORT WATER STEWARDSHIP EDUCATION, DECISION-MAKING DATA, AND ONLINE STARTER TOOLS AT THE GLOBAL LEVEL

By educating companies on how water stewardship can play a role in both achieving their own corporate goals and contribute to solving shared water challenges, we can grow the pool of companies in the space and prime them to make positive contributions towards sustainable water management for the Basin. There is an existing corporate water stewardship movement in the Basin; with sufficient investment in data collation to articulate the case for action, and improved tools to help them get started, more companies can be brought into the fold.

- 1) Support improved corporate reporting on water use and stewardship activities.** Robust data from more companies on their water use and water stewardship activities are needed to incentivize action and evaluate progress. This is not the only data gap, but it is one of the most important. Some of the greatest barriers to company action are a lack of decision-making data, the inability to compare and verify data that do exist, and the inability to measure companies' water-related performance against one another. A lack of comparable, benchmarked water use and management data can prevent investors from engaging with companies to take action, or limiting civil society understanding of where to target their advocacy. By supporting

corporate and water supplier benchmarking efforts targeted on the Basin, for example through CDP's Supply Chain program, better datasets will become available for the research and water stewardship communities to analyze progress and recommend areas for improvement.⁶⁷ This in turn will help more companies adopt robust water strategies that can address water challenges in the Basin.

2) Support online tools to help companies get started. Companies often evaluate water risks using global mapping tools, such as WRI's Aqueduct Risk Atlas tool or WWF's Water Risk Filter. Extensions to these tools, like providing data on the status of public water management in areas where companies operate, could help companies engage with the public sector. Online platforms like the Water Action Hub provide compendiums of research and case studies as well as help for companies seeking partners for on-the-ground projects.⁶⁸ However, these tools require continuous updates to ensure companies are using the best available information. Investment in these types of tools and other data platforms could improve companies' access to water risk information, help them learn from other companies' experiences, or link them to future partners for collaborative action. This would help companies new to water stewardship understand the magnitude of challenges and the need for action, and would help companies already committed to water stewardship take more informed actions.

3) Support investor-led efforts to engage companies in corporate water stewardship. Increasing investor interest can be leveraged to prompt more companies to engage in corporate water stewardship. For example, they can exert influence through initiatives like the Ceres/WWF Ag Water Challenge and their corresponding *Feeding Ourselves Thirsty* benchmarking report to incentivize companies to improve water stewardship in agricultural supply chains.⁶⁹ Investors may also be able to support the financing of innovative water management practices in agriculture (capital expenditures that growers may struggle to make alone). Platforms like the United Nations Principles of Responsible Investment (UN-PRI) have provided guidance and recommendations for investors to engage companies on agricultural supply chain water stewardship activities.⁷⁰ Building on this body of work and bringing it down to the Basin level could drive uptake. However, this work need not be isolated to the value chain. Institutional investors can influence other companies to invest in other water stewardship practices via investor platforms like Ceres and UN-PRI, and to publicly disclose those activities through platforms such as CDP and GRI.

67 CDP, "CDP Supply Chain," 2019. Retrieved from <https://www.cdp.net/en/supply-chain> (accessed October 25, 2019).

68 The Water Action Hub is a global online collaboration and knowledge sharing platform for water sustainability, developed by the CEO Water Mandate. See <https://wateractionhub.org/>.

69 Ceres, *Feeding Ourselves Thirsty – Tracking Food Company Progress Towards a Water-Smart Future* (2019). Retrieved from <https://feedingourselfsthirsty.ceres.org>.

70 Principles for Responsible Investment, *Growing Water Risk Resilience: An Investor Guide on Agricultural Supply Chains* (2018). Retrieved from <https://www.unpri.org/environmental-issues/growing-water-risk-resilience-an-investor-guide-on-agricultural-supply-chains-/2793.article>.

STRATEGY 2: FACILITATE LOCAL ACTION ON WATER STEWARDSHIP

The success of water stewardship activities beyond a company's fence line (and often within direct operations) depends on partnerships and collaboration. There is a real or perceived fear by many companies of engaging in water-related collective action with other stakeholders, especially the public sector, due to potential allegations of "policy capture" or self-interest. This fear can hinder meaningful collaboration. In addition, companies often struggle to find where to "plug in" to existing collaborations and efforts in regions where they have a presence or interest. The following provides recommendations to scale desired water stewardship practices at the local level, in part by leveraging an enabling or neutral environment to facilitate company engagement with suppliers, the public sector, local communities, and other stakeholders to address challenges collectively.

1) Target engagement on water-intensive industries in the Basin. While the activity of direct water management could be undertaken by any company operating within the Colorado River Basin, regardless of size or sector, it may be most effective to focus engagement efforts on water-intensive industries, such as micro-electronics, food and beverage, pharmaceutical manufacturing, or data centers, or focus on industries with consumer-facing operations, such as hotels or apparel brands. Encourage the uptake of frameworks and guidance, such as AWS certification or contextual water target-setting, that lead companies to sustainable water management and water stewardship decisions robustly informed by local conditions. Typically, this is done in partnership or consultation with an expert

Supporting a facilitating organization with relationships both with companies and water utilities can assist with establishing relationships between them to engage on watershed planning or collaborative projects.

organization that can help guide the company through implementation.

2) Target value chain engagement on industries with important supply chains in the Basin.

Value chain engagement projects should focus on industries with important supply chains located in the Basin, e.g. technology companies, power generation, or food and beverage companies. Companies with beef and dairy supply chains present a significant opportunity, particularly in addressing cow feed crops. Irrigated pasture and forage crops comprise 60 percent of the irrigated land in the Basin and are largely used to feed over one million cows that reside there.⁷¹ Engagement could take place in the form of leveraging customer-supplier relationships to advocate for better water practices, and/or providing incentives, co-financing, education, and training for innovative water management technologies and approaches. Typically, this

⁷¹ Michael Cohen, Juliet Christian-Smith, and John Berggren, *Water Supply to the Land: Irrigated Agriculture in the Colorado River Basin* (Pacific Institute, 2013). Retrieved from <https://pacinst.org/publication/water-to-supply-the-land-irrigated-agriculture-in-the-colorado-river-basin/>.

is done in partnership or consultation with an expert organization that can help guide the company through implementation. For example, Nestle Purina and Cargill, which both heavily rely on beef inputs, have partnered with TNC to improve irrigation management for feed crops to address depletion of the Ogallala Aquifer.

- 3) Support platforms to facilitate relationship-building and knowledge-sharing between companies, NGOs, water utilities, and other key water stakeholders.** Water stewardship platforms like BWS and CWAC have had demonstrable success in bringing together companies and NGOs to collaborate on projects and share water stewardship learnings.⁷² The development of more of these platforms, or support to grow existing ones, is needed to scale water stewardship in the Basin. There is a similar facilitation need for building relationships between companies and their water utilities. Supporting a facilitating organization with relationships both with companies and water utilities can assist with establishing relationships between them to engage on watershed planning or collaborative projects. Similarly, supporting an organization or expert individual to train and educate commercial/industrial account managers within water utilities can help them better communicate with the business community.

To conclude, corporate water stewardship is an approach that allows companies to identify and manage water-related business risks, understand and mitigate their adverse impacts on ecosystems and communities, and contribute to a more sustainable management of shared water resources. Companies practicing good corporate water stewardship act upon the true value of water to their business and the communities in which they operate, supply from, and sell to. These companies understand the business imperative of integrating water management into their decision-making. However, the current pool of companies practicing robust water stewardship in the Colorado River Basin is small, and the scale of their collective activities is nowhere near commensurate to the magnitude of water challenges confronting the Basin. But these activities have untapped potential for positive impact if the community and level of activity is grown; the recommendations in this report lay out a path to get there.

⁷² “Securing Water for Business, Nature, and Communities,” Business for Water Stewardship, 2019. Retrieved from <https://businessforwater.org/> (accessed October 25, 2019).

APPENDIX 1: COMPANIES OPERATING IN THE COLORADO RIVER BASIN ASSESSED FOR THIS REPORT

The table below shows a list of companies known to operate within the Colorado River Basin, either directly using water for their own facilities or through their supply chain, that were assessed to inform this report.

Table 1. Companies Analyzed for Their Water-Related Activities in the Colorado River Basin

Organization	Primary Sector/Activity
Allergan plc	Pharmaceutical & Biotechnology
Amkor Technology	Electrical/Electronic Equipment (semiconductors)
Anadarko Petroleum Corporation	Oil & Gas Extraction
Bridgestone	Wood & Rubber Manufacturing
Caesars Entertainment	Entertainment Facilities
Celgene Corporation	Pharmaceutical & Biotechnology
Continental AG	Wood & Rubber Manufacturing
Crescent Point Energy Corporation	Oil & Gas Extraction
Dominion Energy	Thermal Power Generation
Exelon Corporation	Thermal Power Generation
First Solar	Solar Photovoltaics
Freeport-McMoran	Metal Smelting, Refining & Forming
Heineken NV	Alcoholic Beverages
Hilton	Hospitality
Hyatt	Hospitality
Insight Enterprises	Information Technology
Intel Corp.	Electronic Components
Kellogg Company	Food, Beverage & Agriculture
Keurig Dr Pepper	Food, Beverage & Agriculture
Marriott International	Hospitality
MGM Resorts	Hospitality & Gambling
Microchip Technology Inc	Electrical/Electronic Equipment (semiconductors)
Microsoft	Information Technology
Molson Coors	Food, Beverage & Agriculture
ON Semiconductor	Electrical/Electronic Equipment (semiconductors)
Otsuka Holdings Co., Ltd.	Pharmaceutical & Biotechnology
PepsiCo, Inc.	Food, Beverage & Agriculture
PetSmart	Specialized Retail
Pinnacle West Capital Corporation	Thermal Power Generation
Raytheon Company	Electrical/Electronic Equipment (defense)

Table 1. (Continued) Companies Analyzed for Their Water-Related Activities in the Colorado River Basin

Organization	Primary Sector/Activity
Sekisui House, Ltd.	Construction
Sempra Energy	Energy Utility Network
Sodexo	Hospitality
Southern Copper/Grupo Mexico	Mining
Starwood	Hospitality
Sysco	Food & Beverage
The Coca-Cola Company	Food, Beverage & Agriculture
Unilever	Personal Care & Household Products
Wal-Mart	Supermarkets
Waste Management, Inc.	Waste Management
Wells Fargo	Banks
WhiteWave Foods	Food, Beverage & Agriculture



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