

Pathways and Barriers to Corporate Water Stewardship in the Colorado River Basin



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Founded in 1987, the Pacific Institute is a global water think tank that combines science-based thought leadership with active outreach to influence local, national, and international efforts in developing sustainable water policies. Its mission is to create and advance solutions to the world's most pressing water challenges. From working with Fortune 500 companies to disenfranchised communities, the Pacific Institute leads local, national, and international efforts in developing sustainable water policies and delivering meaningful results.

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Executive Summary

The Colorado River is the lifeblood of the American West. It supports 30 Native American tribes and farms, cities, and ecosystems in seven US states—Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming—and the Mexican states of Baja California and Sonora. However, the river is in crisis. Twenty-three years of drought, the over-allocation of water, and climate change have exacerbated a structural deficit—where more water leaves the system than enters it—for the tribes, communities, and ecosystems that depend on the Colorado River.

To advance water resilience in the Colorado River Basin (Basin), accelerated action and investment are required from all sectors. These efforts must be strategic, coordinated, and amplified to effectively tackle the Basin's challenges. Corporations can play a key role through their operations and supply chains, and by co-funding innovative projects. While a subset of leading companies is engaging in corporate water stewardship (CWS) in the Basin, more is needed to meet the magnitude of the water crisis at hand.

This report outlines barriers and pathways to CWS in the Basin based on 20 interviews with corporate and non-corporate stakeholders from February to April 2022, and interviewee feedback on the results. The report is part of a broader Pacific Institute effort to advance CWS in the Basin. We are using these findings to prioritize CWS projects, initiatives, and approaches to pilot and scale in the Basin. More broadly, the findings are applicable to moving CWS toward building long-term water resilience in the Basin and other water-stressed basins around the world.

The Colorado River is the lifeblood of the American West... Twenty-three years of drought, the over-allocation of water, and climate change have exacerbated a structural deficit—where more water leaves the system than enters it—for the tribes, communities, and ecosystems that depend on the Colorado River.

KEY FINDINGS

We segmented interview questions into three sections: broad perspectives on CWS in the Basin, barriers to funding and implementing CWS projects, and pathways for advancing CWS projects. The findings in each section represent the most common themes across interview responses; we synthesized but made no attempt to validate them. All findings represent the perspectives of interviewees, though any given finding may not reflect any one interviewee's opinions. The following terms are used to indicate the proportion of interviewees to which each finding can be attributed: a few, about half, the majority, almost all, and all. The appendix provides a detailed explanation of the research methods used for this report.

State of Corporate Water Stewardship in the Colorado River Basin

We identify the following three high-level themes about CWS in the Basin, based on corporate and non-corporate interviewee responses:

1. The majority of corporate interviewees consider the Basin to be a high priority location for CWS projects, compared to other basins around the world in which they have a presence.
2. All corporate interviewees have set quantitative targets to replenish water in the Basin.
3. The majority of non-corporate interviewees stated that they do not perceive CWS projects as influential in addressing Basin challenges.

Barriers to Impactful Corporate Water Stewardship in the Colorado River Basin

This research identified the following five barriers to implementing impactful CWS projects, based on corporate and non-corporate interviewee responses:

1. The majority of corporate interviewees stated that they have limited internal capacity to run a CWS program.
2. About half of the corporate interviewees stated that corporations lack the data needed to properly assess water risks and inform decision-making.
3. A few corporate and non-corporate interviewees stated that corporations typically invest in projects that are in the implementation phase and that have quantifiable benefits.
4. A few of the corporate interviewees stated that they are not sure whether or how to engage in advocating for water policies.
5. A few of the non-corporate interviewees stated that there can be competing priorities between economic development and sustainable water management.

Pathways to Impactful Corporate Water Stewardship in the Colorado River Basin

This research identified the following pathways currently used by corporations:

1. Almost all corporate interviewees stated that they are funding on-the-ground water replenishment projects. However, there is room for improving the investment criteria for funding projects.
2. Almost all corporate interviewees stated that they are improving water management in their owned and operated facilities. However, corporate involvement in this pathway may be less apparent to external audiences.

3. The majority of corporate interviewees stated that they are using their brand to raise awareness about Basin water challenges. However, corporations may be less involved in communicating about specific actions that they are taking.
4. The majority of corporate interviewees stated that they are developing innovative products and services that help solve water challenges. However, non-corporate interviewees view this action as less important.

This research identified the following future opportunities for corporations to take:

5. Half of the corporate interviewees are engaged in using their brand to advocate for sustainable water policies, and they need more guidance on how to engage in water policy ethically and effectively.
6. Only one corporate interviewee said their company was engaged in supply chain water management. This action is becoming increasingly important, particularly in agricultural supply chains, and corporations need more guidance on this action.
7. All corporate interviewees stated that they need to be involved in some form of water-related collective action, and about half of the non-corporate interviewees stated the need for this action as well. Corporate and non-corporate interviewees told stories of collective efforts they have been involved in, frequently stating that corporations should be more involved in efforts like these.

CONCLUSION

In this study, we found that corporations are pursuing multiple pathways to address water challenges in the Basin, including funding on-the-ground water projects, improving water management in operations, using their brand to raise awareness about water challenges, and developing innovative products and services. We also identified pathways that are not currently widely implemented but that could have greater corporate adoption, including using their brands to advocate for sustainable water policies and improving water management in supply chains. The interview findings also showed that the future success of CWS activities depends on collective action.

CWS practices in the region are still relatively nascent and corporations face many barriers to having positive water impact at scale. Key barriers include a lack of internal resources for CWS programs, lack of data and information needed to properly assess water-related risks and inform decision-making, narrow criteria for selecting and funding on-the-ground projects, and uncertainty about how to engage in advocacy for sustainable water policies.

These findings are informing our efforts and the efforts of our partners to advance CWS projects, initiatives, and approaches in the Basin. Beyond the Basin, these findings can inform how corporations can better contribute to positive water outcomes in water-stressed regions around the world.

RECOMMENDATIONS

Based on the interview synthesis findings, we pinpointed specific approaches that could allow corporations to make a broader impact on addressing Basin water challenges. These are listed in Table ES-1. It is important to note that these recommendations focus on approaches that were either not mentioned in the interviews or identified as less commonly adopted than other approaches, indicating potential areas for increased focus and effort.

TABLE ES-1. Recommended Approaches to Enable More Successful Corporate Water Stewardship Projects

Water Stewardship Pathway	Recommended Approaches
Investing in on-the-ground projects	<ul style="list-style-type: none"> • Fund entire project cycles. • Invest in projects that provide water access and support the human right to water. • Support local conservation and efficiency projects. • Broaden project investment criteria to encompass climate resilience, environmental justice, recreation, biodiversity, and agricultural sustainability.
Water management in corporate facilities	<ul style="list-style-type: none"> • Improve metering technology for precise water-use measurement and monitoring. • Enhance water management (e.g., efficiency, recirculation, reuse) within operational processes. • Improve indoor and outdoor water-use efficiency in commercial and industrial facilities.
Using brands to raise awareness	<ul style="list-style-type: none"> • Promote awareness of investments in on-the-ground projects. • Highlight internal water management improvements. • Share case studies showcasing environmental and social returns on project investments. • Encourage customers and suppliers to participate in water conservation.
Developing innovative products and services	<ul style="list-style-type: none"> • Develop, offer, and promote products and services that help assess and address local water risks and improve water management.
Using brands to advocate for sustainable water policies	<ul style="list-style-type: none"> • Participate in the co-creation of corporate guidance on advocating for water policies. • Establish platforms for a collective business stance on water policy matters.
Supply chain water management	<ul style="list-style-type: none"> • Participate in co-creation of corporate guidance on supply chain water management programs. • Provide requirements, incentives, and support for suppliers to improve water management. • Support regenerative agriculture and promote agricultural water reuse and efficiency.



Introduction

The Colorado River is the lifeblood of the American West. It supports 30 Native American tribes and farms, cities, and ecosystems in seven US states—Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming—and the Mexican states of Baja California and Sonora. However, the river is in crisis. Twenty-three years of drought, the over-allocation of water, and climate change have exacerbated a structural deficit—where more water leaves the system than enters it—for the tribes, communities, and ecosystems that depend on the Colorado River.

In August 2021, for the first time ever, the federal government declared a shortage for the Lower Colorado River Basin, triggering significant cutbacks to water users and signaling a new level of emergency. In June 2022, the US Bureau of Reclamation Commissioner called on basin water users to submit a plan for water-use reductions of as much as one-third of current use. In response, and aided by very high snowpack, in May 2023, Arizona, California, and Nevada submitted a proposal to reduce their collective, cumulative use of the Colorado River by three million acre-feet through 2026.

Significant action and investment are needed to reduce demands on an over-allocated and increasingly stressed Basin.

Significant action and investment are needed to reduce demands on an over-allocated and increasingly stressed Colorado River Basin (Basin). Adjusting Basin water use to current and future supply requires an “all-of-the-above” approach, where each sector contributes to a solution. Corporations can make meaningful contributions to improving Basin water conditions through their own operations and through their supply chains, as well as by educating their customers and shareholders.

This report outlines the barriers and pathways to funding and implementing corporate water stewardship (CWS) projects in the Basin, based on results from 20 stakeholder interviews conducted with corporate and non-corporate stakeholders involved in CWS in the Basin.¹ The stakeholders

¹ 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 more sustainable management of shared freshwater resources. Stewardship is rooted in the concept that robust and effective public water governance is critical to the long-term business viability of water-intensive industries, and that companies can play a role in achieving this end.

selected reflect a mix of industries and perspectives (but do not reflect the full range).² We used established qualitative research methods to analyze the interview responses and identify key themes. Please see the appendix for detailed information on this study's methods. We will use these findings to prioritize water stewardship projects, initiatives, and approaches to pilot and scale in the Basin. More broadly, the findings can help inform corporate contributions to building long-term water resilience in water-stressed basins around the world.

FIGURE 1. The Colorado River Basin



© Courtesy of The Babbitt Center for Land and Water Policy and the Center for Geospatial Solutions, Lincoln Institute of Land Policy

² The corporate stakeholders include people employed in the corporate sector whose roles were to fund or implement water stewardship projects. All corporations represented in the interviews had some part of their value chain depending on water from the Colorado River. The following sectors were represented in the corporate interviews: beverage, technology, food manufacturing, chemicals, and general manufacturing. The non-corporate stakeholders included people whose jobs focused on water management, and who also had interest or experience in engaging in corporate water stewardship projects in the Basin. The project team interviewed the following non-corporate sectors: government, consultants, and nonprofit organizations.



Findings

Our findings represent the most common themes in the interviews across three major categories: (1) the current state of CWS in the region, (2) barriers to funding and implementing CWS projects, and (3) pathways for implementing CWS projects. The following terms are used to indicate the proportion of interviewees to which each finding can be attributed: a few, about half, the majority, almost all, and all.³ The appendix provides a detailed explanation of the research methods used for this project.

These findings represent a snapshot of CWS in the Basin: how it is being implemented, how it is perceived, and opportunities for improvement and expansion. It is important to note that these findings represent a synthesis of the opinions of the people we interviewed; we made no attempt to validate the views shared. Additionally, as a synthesis, any given perspective captured here does not necessarily reflect that of any individual interviewee.

THE CURRENT STATE OF CORPORATE WATER STEWARDSHIP IN THE COLORADO RIVER BASIN

Our interview synthesis identified three major themes about the current state of CWS in the Basin. Each of these findings is described below.

The Colorado River Basin is a high-priority region for corporate water stewardship projects.

The majority of corporations interviewed have set global water stewardship goals, utilizing various external tools such as the Volumetric Water Benefit Accounting method, WWF Water Risk Filter, the Aqueduct Water Risk Tool, the AWS Standard 2.0, and the Toolbox for Setting Enterprise Water Targets.

Among their worldwide initiatives, the Basin emerges as a top priority. The majority of corporations interviewed are aligning their goals to the specific needs of the Basin and are collaborating with organizations like Bonneville Environmental Foundation, the CEO Water Mandate, World Resources Institute, LimnoTech, the Alliance for Water Stewardship, Ernst & Young, Femsa Foundation, and Brown & Caldwell for project support.

³ For reference, in corporate interviews: “A few” pertains to 3 out of 9 respondents; “About half” to 4 or 5 out of 9; “The majority” to 6 or 7 out of 9; “Almost all” to 8 out of 9; and “All” to 9 out of 9. For non-corporate interviews: “A few” refers to 3 or 4 out of 11; “About half” to 5 or 6 out of 11; “The majority” to 7 or 8 out of 11; “Almost all” to 9 or 10 out of 11; and “All” to all 11 respondents.

Corporations have quantitative targets for replenishing water in the Basin.

All corporate interviewees have quantitative water targets, which include reducing water withdrawals, reusing water, or replenishing Basin water. Corporate water targets are primarily met by funding or co-funding projects outside of their fence line that replenish water in the Basin. One company, recognizing the interconnectedness of upstream forests to downstream farms, sponsored a forest resilience project to address water risks associated with crop cultivation. Meanwhile, another corporation collaborated with an NGO to focus on community welfare and restoration in the Colorado River Delta. Corporations also meet their targets by reducing and/or reusing water within their own facilities.

The majority of corporations fund replenishment projects based on the extent to which that project can deliver quantitative volumetric benefits. About half of the corporations mentioned that they consider other benefits as bonus criteria. While other benefits are not determinants of whether a project is selected, for some corporations, these benefits make projects more attractive for funding. The corporate interviewees mentioned climate resilience, environmental justice, recreation, biodiversity, and agricultural sustainability as other benefit categories.

Non-corporate stakeholders do not perceive corporate water stewardship projects as influential.

The majority of the non-corporate interviewees stated that CWS projects do not currently have a lot of influence in the Basin, and about half stated they should have more influence. Non-corporate interviewees have observed corporations funding one-off projects that only offset rather than reduce their water use. Non-corporate interviewees stated that corporations seem more concerned about achieving corporate stewardship targets than meaningfully addressing water scarcity in the region.



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BARRIERS TO FUNDING AND IMPLEMENTING IMPACTFUL CORPORATE WATER STEWARDSHIP PROJECTS

We identified five key barriers to funding and implementing impactful CWS projects. Each of these barriers is described below.

Corporations have limited internal capacity to run a corporate water stewardship program.

The majority of corporate interviewees cited internal capacity as a barrier to achieving their water stewardship goals. Companies often rely on external partnerships to find and fund water stewardship projects. Companies also face a lack of visibility into and control over the water management decisions in their supply chains, whether those supply chains are internal or third party.

Corporations lack the data needed to assess water-related risks and inform water stewardship decision-making.

About half of the corporate interviewees and a few of the non-corporate interviewees indicated that data availability is a barrier. Given the localized nature of water stress conditions, corporations require specific local datasets for accurate risk assessment, rather than relying on global datasets which may not capture these nuances. This limitation hinders a corporation's capacity to use water risk assessment tools for decisions like where to locate new facilities, or to evaluate the risks at existing sites. A related challenge is demonstrating the connection between a facility outside of the Basin that receives water from the Colorado River and water stress (and resulting water risk) in the Basin. Better data are needed for water supply and water use accounting at local, state, and national scales.

There is sometimes a mismatch between corporate investment criteria and the most impactful projects.

A few corporate and non-corporate interviewees stated that investment-project mismatch is a barrier. Corporations primarily invest in projects that have quantifiable water replenishment benefits that fit within a pre-determined timeline. Projects that are too early in the planning phase, projects that are in the monitoring/maintenance phase, and/or projects that do not have quantifiable or volumetric benefits typically do not get funded. These parameters can prevent corporations from investing in some otherwise impactful projects.

The majority of corporate interviewees cited internal capacity as a barrier to achieving their water stewardship goals.

Corporations are not sure whether or how they should engage in water policy.

A few corporate interviewees stated that policy advocacy is a barrier. It is unclear what role corporations should play in policy engagement that supports water stewardship or sustainability. Similarly, it is unclear how policy engagement should fit into their water stewardship strategies. This idea was echoed by non-corporate respondents who stated that this topic is delicate and that corporate involvement in water policy advocacy would need to be transparent and have clear guidelines.

Interviewees also had divergent interpretations of water policy advocacy. Some interpreted it as being directly involved in making legislative change, whereas others interpreted it as consulting with organizations that have influence in public policy dialogues.

When corporation representatives were asked separately, about half stated that they were unsure whether their company is engaged in policy dialogues around water. This uncertainty was attributed to policy and sustainability teams at these corporations being siloed.

There can be competing priorities between economic development and sustainable water management.

A few non-corporate interviewees discussed the competing priorities between economic development and water management as challenges facing all stakeholders in the region. Water agencies are often not looped into the conversation when a big corporate water user is siting a new facility in their region. States and local authorities generally want to promote commercial, industrial, and residential growth, and the challenge is balancing the benefits of water-intense development with the trade-offs of limited water supplies.



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PATHWAYS FOR IMPLEMENTING IMPACTFUL CORPORATE WATER STEWARDSHIP PROJECTS

We gave the interviewees a list of six specific CWS pathways. Both corporate and non-corporate participants then discussed if these pathways truly reflect the main methods corporations use to advance water stewardship in the Basin. This research confirmed that the six pathways outlined in Figure 1 are valid for corporations to take when implementing impactful CWS projects. These pathways can be organized into current practices and future opportunities, based on the frequency with which corporate interviewees are employing them.

FIGURE 1. Pathways for Corporate Water Stewardship Impact

Fund On-the-Ground Water Projects	Improve Water Management in Facilities	Use Brand to Raise Awareness	Develop Innovative Products and Services	Use Brand to Advocate for Water Policies	Improve Supply Chain Water Management
Current Practices				Future Opportunities	

Funding on-the-ground water projects.

Almost all corporate interviewees are funding on-the-ground projects, with the majority of corporations selecting projects that can deliver quantitative volumetric benefits. Additionally, projects that are too early in the planning phase or in the monitoring and maintenance phase generally are not selected for funding by the corporations interviewed. Therefore, although corporations are already funding projects, there are a range of other impactful projects that can benefit from corporate investment.

To expand their project investments, corporations typically need a justified connection to quantitative water conservation or replenishment outcomes. The types of non-typical projects mentioned include funding utilities to implement green infrastructure or reclaimed water projects. Interviewees, particularly non-corporate interviewees, noted the need for investment in the entire cycle of a project, rather than just the implementation phase.

Improving water management in their owned and operated facilities.

Almost all corporations included in this study are improving water management in their own facilities. Water-related facility improvements are typically focused on efficiency. There is potential to expand internal water management practices, as only two corporate interviewees mentioned water reuse as an internal water management improvement. A few non-corporate interviewees explicitly stated that corporations are not sufficiently focused on improving water management in their own facilities. The cost of water is small compared to other utility costs, which may lead to less emphasis on sustainable water management internally, especially when compared to corporate efforts to measure and manage energy use.

Using brand to raise awareness about Basin water challenges.

The majority of corporate interviewees stated that they are using their brand to raise awareness about water challenges in the Basin. A few stated that there is room for improvement on this pathway. About half of the non-corporate interviewees stated that this action is necessary. Public messaging can help build consensus among corporations, water managers, and the public about shared water challenges. Messaging can also support public education and spark conversations about the need for more sustainable water use.

To improve on this pathway, corporations can focus more on raising awareness about projects they are personally invested in. This could also help address the issue that non-corporate interviewees generally do not perceive CWS to be meaningfully addressing shared water challenges in the Basin. Additionally, raising awareness is an opportunity to inspire other corporations, customers, and suppliers to take similar actions.

Corporations can use their brands and communications capacity to help build the business case for water stewardship. A few corporate interviewees discussed the need to share case studies to make it clear to other companies that there is a real reason to invest in water stewardship strategies and projects. This can help set certain corporations apart reputationally, and it can help steer changes in the corporate sector at large. Water stewardship case studies could include environmental return on investment information (for example, illustrating how reducing water use reduces energy and greenhouse gas emissions and saves money). Case studies are particularly needed for corporations that have not yet engaged in water stewardship, supplier companies, or for small and medium-sized companies that only employ one sustainability staff person.

Corporations can use their brands and communications capacity to help build the business case for water stewardship.

Developing innovative products and services.

The majority of corporate interviewees stated that they were involved in developing innovative products and services to improve water management. Two non-corporate interviewees perceived this action as not as important as the other actions, unless the corporation already produces innovative water management products as a part of their core business.

Using their brand to advocate for sustainable water policies.

About half of the corporate interviewees stated that they are involved in using their brand to advocate for sustainable water policies. A few expressed interest in this activity but have not yet found a way to do it. Corporations need more guidance on how to advocate for water policies, and they need a platform to share a collective voice on policy issues. As detailed in [Barriers](#), it is unclear to a few corporations what role they should play in policy engagement for water stewardship.

Improving supply chain water management.

Only one corporate interviewee stated that they were actively involved in improving water management in their supply chain. The majority of interviewees stated that this is an action that they want to take in the future, but lack capacity or knowledge to do so currently.

Improving supply chain water management is particularly important for corporations whose supply chains involve agriculture. This is especially true in the Basin, where agriculture accounts for approximately 70% of water use.⁴ There is an opportunity for corporations with agricultural supply chains to test out more sustainable agriculture management practices and technologies, and to help scale these systems. For example, a corporation could work with farmers in their supply chain to implement a regenerative agriculture program or improve irrigation efficiency.

Two corporate interviewees brought up the comparison between water and climate data in the context of supply chains. For example, a corporation can pull carbon emissions information from CDP for specific suppliers.⁵ There is a data deficiency regarding water use because water use is often seen as a lower-priority corporate sustainability issue, and because water information is highly localized and temporally variable.

Engaging in water-related collective action.

We asked interviewees to identify any other actions that corporations should be taking that were not covered by the six pathways above. All corporate interviewees stated that they need to be involved in some form of collective action, and about half of the non-corporate interviewees stated the need for this action as well. This action includes pooling resources and ideas across multiple stakeholder groups to solve problems at the center of overlapping priorities. Corporate and non-corporate interviewees told stories of collective efforts they have been involved in, frequently stating that corporations should be more involved in efforts like these.

Collective action is distinct because it can be an overarching approach to the other pathways. As opposed to being its own pathway, collective action is a mechanism for achieving any of the pathways laid out in [Figure 1](#). For example, collective action can be the means by which corporations participate in public policy, invest in on-the-ground projects, or engage in raising water awareness.

Collective action can help amass larger pools of funding for high-impact on-the-ground projects. Non-corporate interviewees stated that collective action can address the Basin-wide water demand and supply imbalance because it can support collective demand management across states, the exchange of water rights, and cost sharing for water conservation and efficiency projects. Corporate interviewees stated that sharing resources and knowledge requires corporations to be transparent about their goals and priorities, ensuring that goals and priorities benefit everyone and the costs are shared proportionally.

4 <https://pacinst.org/publication/water-to-supply-the-land-irrigated-agriculture-in-the-colorado-river-basin/>

5 CDP is a nonprofit organization that runs a global disclosure system for investors, companies, cities, states, and regions to manage their environmental impacts. See <https://www.cdp.net/en>.

Conclusion

In this study, we found that corporations are pursuing multiple pathways to address water stress, including funding on-the-ground water projects, improving water management in their owned and operated facilities, using their brand to raise awareness about water challenges, and developing innovative products and services. We also identified pathways that are not currently widely implemented but that can and should have greater corporate adoption, including using their brands to advocate for sustainable water policies and improving water management within their supply chains. The interview findings confirmed that the future success of CWS activities depends on collective action.

CWS practices in the region are still nascent and corporations face many barriers to having positive impact at scale. The primary barriers include a lack of capacity and internal resources for CWS programs, as well as lack of data and information needed to properly assess water-related risks and inform decision-making. Other barriers include narrow criteria for selecting and funding on-the-ground projects, and uncertainty about how to engage in advocacy for sustainable water policies. With the findings from this research, we aim to help increase the number of companies that embrace CWS, and support companies with existing CWS efforts on their path toward making a greater contribution to sustainable water management in the Basin. We believe these findings can help others do the same in the Basin and other vulnerable water basins around the world.



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Recommendations

Based on the interview synthesis findings, we pinpointed specific approaches that could allow corporations to make a broader impact on addressing Basin water challenges. These are listed in Table 1 and described below. It is important to note that these recommendations focus on approaches that were either not mentioned in the interviews or identified as less commonly adopted than other approaches, indicating potential areas for increased focus and effort.

TABLE 1. Recommended Approaches to Enable More Successful Corporate Water Stewardship Projects

Water Stewardship Pathway	Recommended Approaches
Investing in on-the-ground projects	<ul style="list-style-type: none"> • Fund entire project cycles. • Invest in projects that provide water access and support the human right to water. • Support local conservation and efficiency projects. • Broaden project investment criteria to encompass climate resilience, environmental justice, recreation, biodiversity, and agricultural sustainability.
Water management in corporate facilities	<ul style="list-style-type: none"> • Improve metering technology for precise water-use measurement and monitoring. • Enhance water management (e.g., efficiency, recirculation, reuse) within operational processes. • Improve indoor and outdoor water-use efficiency in commercial and industrial facilities.
Using brands to raise awareness	<ul style="list-style-type: none"> • Promote awareness of investments in on-the-ground projects. • Highlight internal water management improvements. • Share case studies showcasing environmental and social returns on project investments. • Encourage customers and suppliers to participate in water conservation.
Developing innovative products and services	<ul style="list-style-type: none"> • Develop, offer, and promote products and services that help assess and address local water risks and improve water management.
Using brands to advocate for sustainable water policies	<ul style="list-style-type: none"> • Participate in the co-creation of corporate guidance on advocating for water policies. • Establish platforms for a collective business stance on water policy matters.
Supply chain water management	<ul style="list-style-type: none"> • Participate in co-creation of corporate guidance on supply chain water management programs. • Provide requirements, incentives, and support for suppliers to improve water management. • Support regenerative agriculture and promote agricultural water reuse and efficiency.

Investing in on-the-ground projects.

Corporations typically invest in on-the-ground projects that are in the implementation phase and those that offer volumetric benefits. However, there's an occasional disconnect between corporate investment criteria and projects with the most significant impact. To truly make a difference, corporate investments should target communities without adequate water access, focusing on both enhancing water accessibility and bolstering a community's ability to manage their water infrastructure. Further, corporate investments can be channeled into funding entire project cycles, supporting local conservation and efficiency endeavors, and expanding investment criteria to include climate resilience, environmental justice, recreation, biodiversity, and agricultural sustainability.

Water management in corporate facilities.

Corporate facilities often employ various water management strategies to optimize water use. Significant untapped potential exists in water efficiency, and there's substantial evidence supporting this claim. To harness these opportunities and improve water management in corporate settings, companies can adopt the following approaches: implementing water reuse projects, introducing precise internal metering technologies to monitor water usage, enhancing overall water management within their proprietary facilities, and bolstering water efficiency in facility landscaping.

Using brands to raise awareness about water.

To improve awareness of Basin water challenges, corporations can focus more on raising awareness about projects they are involved in, including project investments and internal water management improvements. Corporations can also focus more on raising awareness in the corporate sector at large, and among their customers and suppliers. One way to steer larger corporate change is to share successful case studies that include information relevant to other corporations, such as environmental return on investments.

Developing innovative products and services.

Corporations can continue to use their own industry expertise to develop innovative products and services. For example, corporations in the tech industry can continue to refine solutions that address the data availability challenges discussed in [Barriers](#). Innovative products and services from the tech industry can help other corporations retrieve the most accurate data for understanding the water risks their facilities face (whether they are potential facilities or existing facilities). Additionally, with this information, corporations can more easily loop water managers into discussions on development decisions that affect water supplies.

Using brands to advocate for sustainable water policies.

Corporations need more guidance on how best to advocate for water policies, and they need a platform to share a collective voice on policy issues. Additionally, there are water accounting standards that prevent corporations from investing in otherwise sustainable water projects. For example, if a corporation tries to integrate reclaimed water into their water stewardship goals, it currently does not count as a replenishment benefit according to CDP's water accounting guidance.

Supply chain water management.

The majority of interviewees stated they were currently unable to work on improving supply chain water management, and this is an action that they would like to do more of in the future. Because of this, corporations could benefit from further guidance on what a robust supply chain water management program looks like. Additionally, because agriculture is the largest user of Basin water, corporate engagement on agriculture supply chain water management would be particularly beneficial.

Engaging in water-related collective action.

Finally, while not originally listed in our six pathways, collective action was raised again and again as a critical pathway of its own, and as a vehicle for achieving the six pathways. Collective action allows for amplified impacts, with the results often greater than the sum of its parts. It also can provide social and political cover for companies who may be hesitant to act alone and can more easily engage in a collaborative effort. Lastly, collective action fosters the sharing of ideas and learnings that are needed to help advance CWS and bring new companies into the effort.



Appendix 1: Research Methods

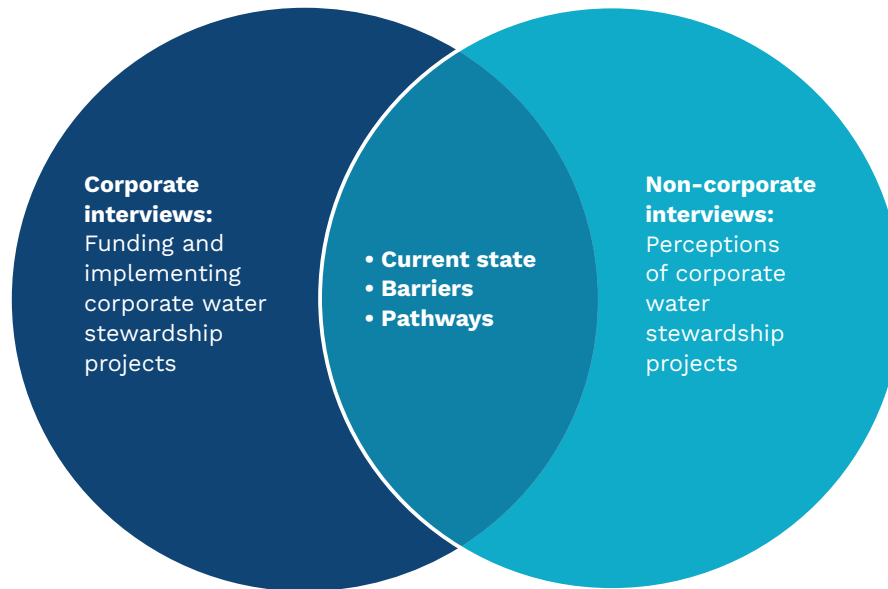
The goal of this project was to identify the barriers and pathways to funding and implementing CWS projects in the Basin. To achieve this goal, the project team implemented the qualitative research plan outlined below.

RESEARCH PLAN

1. Identify stakeholders
2. Design and test interview questions
3. Recruit stakeholders
4. Interview stakeholders
5. Analyze transcripts for themes

In **Step 1**, the project team identified a list of stakeholders with expertise relevant to CWS in the region. After reviewing the list, the team decided to interview two major groups of stakeholders in the Basin: (1) people in the non-corporate sector who have interest or experience with CWS, and (2) people in the corporate sector working in water stewardship.

In **Step 2**, the team designed and tested the interview questions. The team designed separate, but overlapping, interview questions for the non-corporate and corporate stakeholders ([Figure A-1](#)). All stakeholders were asked about the barriers and pathways to implementing impactful CWS projects in the region. Corporate stakeholders were asked more specific questions about funding CWS projects, while non-corporate stakeholders were asked more specific questions about their experiences with and perceptions of CWS projects.

FIGURE A-1. Interview Questions for Corporate and Non-Corporate Stakeholders

In **Step 3**, the team recruited 24 stakeholders to participate in a total of 20 interviews from February to April of 2022. All participants were recruited via email for an hour-long videoconference interview. In the email, the team informed participants that their interviews would be anonymous and that the results would be shared with them. More details about the interview participants are outlined in the “Interview participants” section below.

In **Step 4**, Michael Cohen led the interviews with the non-corporate stakeholders and Cora Snyder led the interviews with the corporate stakeholders. Christine Curtis sat in on all of the interviews to record them and to create partial transcripts.

Finally, in **Step 5**, the project team performed a qualitative data analysis process to identify the themes in the interview transcripts. The qualitative analysis process is described in more detail in the “Data analysis” section on the next page.

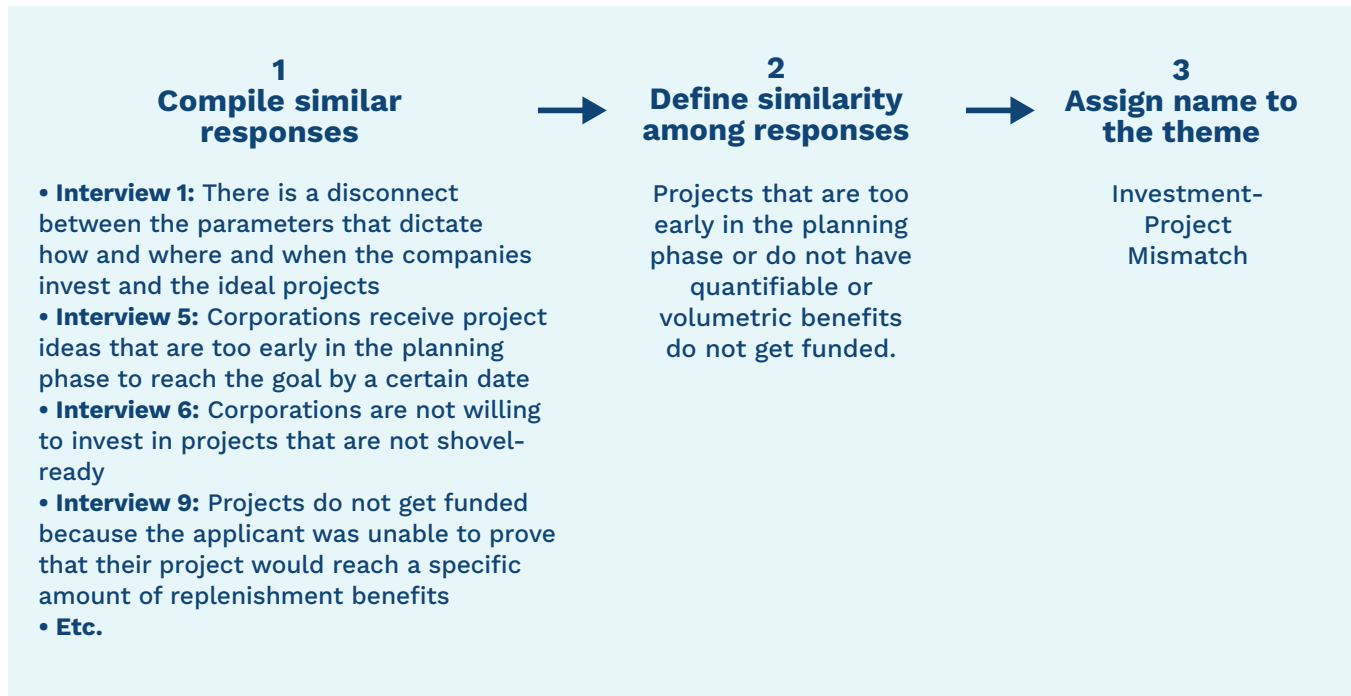
Interview participants

All corporate interviewees had some part of their value chain depending on water from the Colorado River. The following industries are represented in the corporate interviews: beverage, technology, food manufacturing, chemicals, and general manufacturing. On the non-corporate side, the project team interviewed people involved in water management in the region. The non-corporate interviewees were selected because they either had interest or experience in engaging in CWS projects in the Basin. Additional information about interviewees is not included to protect their anonymity.

Data analysis

After completing the interviews, the project team compiled the answers to each question and analyzed the responses for patterns. Figure A-2. Process for Analyzing Patterns in Interview Responses highlights an example of finding patterns in the responses to the question, “What barriers do you face in pursuing your water stewardship goals?”

FIGURE A-2. Process for Analyzing Patterns in Interview Responses



In **Step 1** in Figure A-2. Process for Analyzing Patterns in Interview Responses, the project team identified groups of similar responses from the different interviews. The project team went through an iterative process of gaining consensus around what should be grouped into a category of similar responses. In **Step 2**, the team defined what the similarity was among the grouped responses. In **Step 3**, the team gave the description a label.

The project team’s approach to identifying themes was primarily inductive, which allowed themes to emerge naturally from the responses. The team took this approach when analyzing most of the interview responses. The team used a deductive approach with one set of questions outlined in the list below. In these, corporate and non-corporate interviewees discussed whether six pre-defined categories of actions were valid.

List of actions that corporations can take to address water challenges in the region:

- Improving water management in your owned and operated facilities.
- Improving water management in your supply chains.
- Developing innovative products and services that help improve water management.
- Funding on-the-ground water projects.
- Using your brand to raise awareness about Basin water challenges with customers.
- Using your brand to advocate for sustainable water policies in the Basin states.

For the six pre-defined actions above, the team asked corporate interviewees whether they are currently taking these actions and non-corporate interviewees whether certain actions were more impactful than others. The steps to analyzing the responses to these pre-defined categories are as follows: **Step 1**, begin with a pre-defined category (or action, in this example); **Step 2**, group all similar responses to that category; and **Step 3**, define what the similarity is.

While identifying themes, the team developed a codebook. Codebooks are a dictionary for themes that allow the qualitative analysis to be more rigorous and replicable. Table A1 features an example of one entry in our codebook, using the same example from [Figure A-2](#). Process for Analyzing Patterns in Interview Responses. While there are other labels that can be used in a single codebook entry, for this project, the team used the label for the theme, the definition for the theme, key examples, and an example quote. The best codebooks allow new people to find the same themes in the transcripts on their own.

TABLE A-1. Example of a Codebook Entry for the “Investment-Project Mismatch” Theme

Description	Projects that are too early in the planning phase or do not have quantifiable or volumetric benefits do not get funded.
Examples	<ul style="list-style-type: none"> • Corporations receive project ideas that are too early in the planning phase to reach the goal by a certain date. • Corporations are not willing to invest in projects that are not shovel-ready. • Projects do not get funded because the applicant was unable to prove that their project would reach a specific amount of replenishment benefits.
Example Quote	<p>“The challenge was finding projects that worked for the Mexican side of the Colorado River... We had a goal for 2020. Some of the first projects that we received, they were more 2025 targets. So it was not a connection because it was not something that was starting, they were in the planning phase. It was important that the project could reach the goal before 2020, at least 2019.” Sustainability Manager, Global Brewery</p>

Presentation of results

The results in this paper are presented to primarily focus on the range of barriers and pathways to funding and implementing water stewardship projects. The exact number of people who stated a particular theme is of less importance. However, to get a sense of how prevalent a theme was, specific terms are used, such as “a few” or “about half.” Table A-2 shows the number of participants each term refers to.

TABLE A-2. Labels for the Prevalence of Themes

Term	Corporate Interviews	Non-Corporate Interviews
A few	3/9	3/11, 4/11
About half	4/9, 5/9	5/11, 6/11
The majority	6/9, 7/9	7/11, 8/11
Almost all	8/9	9/11, 10/11
All	9/9	11/11

For example, if a summary statement in the results section reads as “the majority of non-corporate interviewees stated that CWS projects do not currently have a lot of influence,” this means 7 or 8 out of the 11 people interviewed made a statement that fits within this category.



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