

# Valuing Water Finance Initiative Benchmark

## High-Tech Industry

### Key Industry Findings

The following section presents industry-specific highlights and areas for improvement related to the six [Corporate Expectations for Valuing Water](#). Examples of leading company practices are provided throughout. Companies should leverage these insights in conjunction with the [12 key findings](#) to refine and enhance their corporate water stewardship strategies. By evaluating both strengths and weaknesses within their industry, companies can pinpoint the necessary steps to address a range of water-related issues as specified in the six Corporate Expectations for Valuing Water. The [methodology](#) and [downloadable spreadsheet](#) serve as invaluable tools for a deeper dive into individual company performance and the identification of areas demanding further action. Using these resources, companies can not only drive impactful change but also lead the way in responsible and sustainable water management practices, benefiting both their businesses and the global community.

### Water Risk in the Tech Industry

The tech industry requires substantial supplies of water for its operations, exposing companies within the industry to a range of operational, reputational, and regulatory water-related risks. In the United States alone, data centers, which are critical to the industry, [rank among the top 10 water-consuming sectors](#). In fact, data centers are responsible for [consuming a significant amount of water](#) directly for cooling purposes and indirectly through the water requirements of non-renewable electricity generation. Furthermore, the disposal of electronic waste, an inherent byproduct of the industry, contributes significantly to groundwater contamination as it leaches harmful toxins. Beyond these concerns, the extraction and mining of raw materials essential for tech manufacturing processes not only contributes to habitat loss but also poses threats of water contamination, fueling disputes over the control of limited resource reserves. In this complex landscape, the tech industry faces a pressing imperative to address these water-related challenges in a sustainable and responsible manner.

## Notable Highlights

- **Water targets in direct operations:** Of the five tech companies assessed, three have set water positive targets for their direct operations, including owned and/or leased data centers. This signifies their commitment to replenishing more water to the environment than they extract for their activities. To achieve these goals, companies are leveraging technologies designed to minimize water use consumption, enhance water efficiency, encourage reuse, and support replenishment efforts.
- **Innovation for improved water management:** All five tech companies are implementing strategies to improve the design of their data centers with the primary objective of reducing their reliance on freshwater resources. These strategies include a spectrum of initiatives, including the optimization of production center layouts, incorporation of water recycling techniques, and exploration of alternative water sources, such as rainwater harvesting for reuse within their operations and purchasing reclaimed wastewater from water utilities.
- **Water data digitization, open-source tools, and artificial intelligence:** Companies within the industry are engaged in promoting and supporting the assessment of freshwater resources on a global scale. They are doing so by facilitating the digitization of water data, providing open-source tools and harnessing artificial intelligence technologies. These tools serve as instruments of collaboration among various stakeholders, including communities, governments, and organizations. By using these resources, stakeholders can collectively mitigate water risk and work towards achieving positive water stewardship outcomes that benefit all parties involved.

## Areas for Improvement

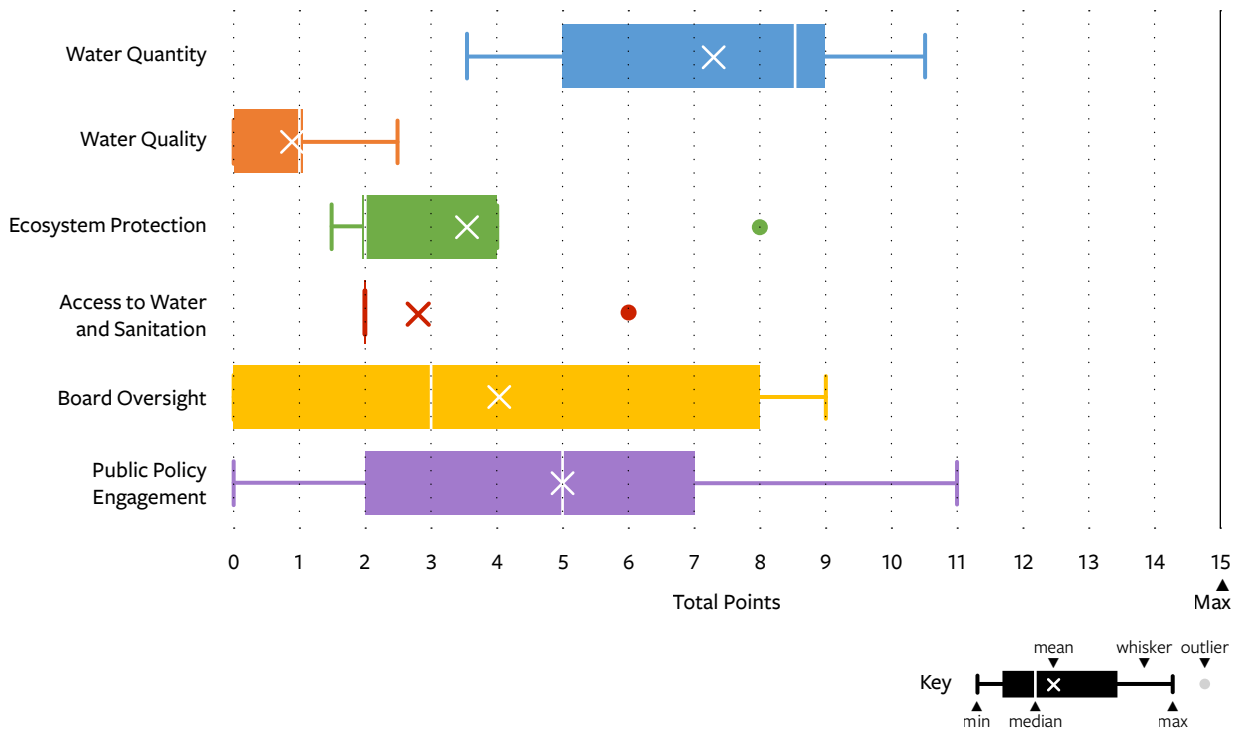
- **Lack of water quality targets:** None of the companies assessed have established specific targets to mitigate their impact on water quality. Only one tech company has reported pollutants of concern in its wastewater and has implemented voluntary standards at select manufacturing sites to reduce pollutant concentrations in wastewater. Given the widespread use of heavy metals within the industry, it becomes increasingly imperative for the industry to assume a more proactive role in ensuring its sourcing and operational practices do not contribute to impairments in water quality.
- **Supply chain water strategies missing:** Understanding and addressing the water-related risks associated with supplier activities is instrumental in bolstering the resilience of the value chain. Yet, none of the five companies assessed have quantitative targets to address their impacts on water availability and quality within their supply chains. While some companies are collaborating with their suppliers to encourage more sustainable water management practices, the absence of specific targets underscores the need for a more comprehensive approach to address water-related impacts within the supply chain.
- **Ecosystem protection and restoration targets largely missing:** It is essential to recognize that robust and thriving ecosystems play a pivotal role in maintaining healthy water supplies. Nevertheless, four of the five tech companies assessed do not have targets for the protection and

restoration of ecosystems critical to freshwater. Furthermore, three of the tech companies lack policies related to sourcing practices and programs to engage with their suppliers to mitigate the harm inflicted on the ecosystems within the supply chain, with particular attention to the impacts on freshwater resources.

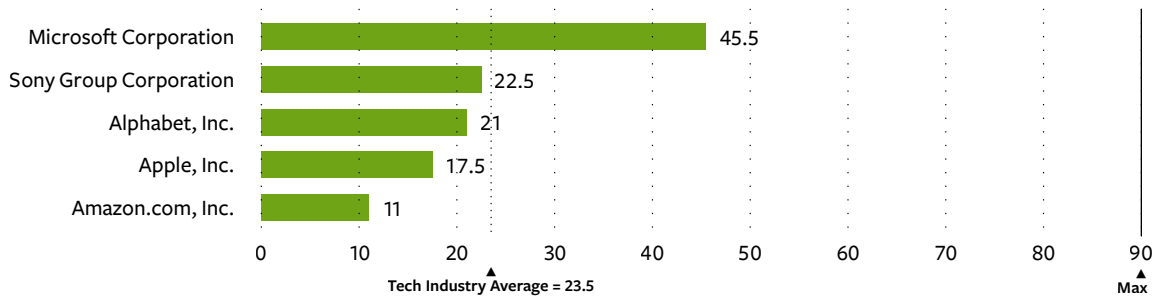
## Detailed Industry Performance

Across the six Corporate Expectations for Valuing Water, companies performed best on the **Water Quantity** Expectation, with a median score of 8.5 (out of 15 total available points) and worst on the **Water Quality** Expectation, with a median score of one (Figure 1). Of the five tech companies assessed, the average industry score was **23.5 out of 90** total points (Figure 2).

**Figure 1 · Tech Industry Performance across the Corporate Expectations**



**Figure 2 • Breakdown of Company Performance (Total Points Scored)**



## Detailed Company Performance

### Water Quantity

Four out of the five tech companies assessed (**Microsoft, Amazon, Alphabet, and Sony**) have established contextual water quantity-related targets for their direct operations. Of those, **Microsoft, Amazon, and Alphabet** have set water positive targets to meet by 2030 and plan to reach these targets by implementing technological and infrastructural changes within their direct operations. **Microsoft**, for instance, is working to meet its water positive commitment by reducing water intensity across direct operations and replenishing and increasing water access in water-stressed regions where it operates. To effectively monitor and evaluate progress towards this commitment, the company plans to align its efforts with the Volumetric Water Benefit Accounting (VWBA) Framework, which provides a science-based approach for measuring the benefit of water stewardship activities. Additionally, **Google** (a subsidiary of **Alphabet**) has a target to replenish 120% of the water it consumes on average across its direct operations, prioritizing water scarce regions. To achieve this goal, the company is implementing various technologies, including a ground-source heat pump technology that reduces water demand for cooling, rainwater collection systems, and water recycling and reuse within its operations.



**None of the tech companies have set specific targets on water use within the supply chain; however, four out of the five tech companies assessed disclose examples of engagement with suppliers.** As part of **Sony's** Green Management 2025 plan, the company requests that suppliers set their own contextual water consumption reduction targets and ensure progress against the targets. However, the company does not disclose these targets in its reporting. Additionally, a subset of the tech companies (**Apple and Microsoft**) leverage globally recognized water standards and

certifications for their select suppliers. For example, in 2018 **Apple** introduced its suppliers to the Alliance for Water Stewardship (AWS) program to adopt standards of water use and encourage them to become certified. Since then, 17 of its supplier facilities have achieved certification.

**All the companies, except Amazon, disclosed aggregated volumes of water withdrawal and consumption for their direct operations, but most have not disclosed this information for their supply chains.** While **Google, Amazon, Microsoft,** and **Sony** are collecting information about water use from select suppliers, this information is not released publicly. For example, **Google** asks suppliers through its Supplier Responsibility Program to disclose water-related data (water withdrawal, consumption, and source type) through the CDP supply chain platform and uses the results to inform its supply chain risk-management strategies. Additionally, **Sony** requests over 80% of suppliers over a specific transaction value to report their water use, risk, and/or management information.



## Water Quality

**None of the companies assessed have set water quality targets for their direct operations or supply chains.** This is especially concerning for this industry as its supply chain has recognized major water quality impacts (such as rare earth elements), and the industry relies heavily on clean water (such as semiconductor manufacturing). While water quality targets are missing, disclosures from some companies do indicate efforts to address water quality concerns. **Sony**, for example, has implemented voluntary standards for environmental pollutants in wastewater, and has introduced advanced water treatment facilities aimed at reducing levels of biochemical oxygen demand (BOD) and chemical oxygen demand (COD).

**Only Microsoft, Sony, and Alphabet have provided details regarding wastewater discharge volumes specifically related to their direct operations. Additionally, only Sony has disclosed pollutants of industry concern (COD, BOD, and fluorine), including how they were identified and the approach for setting company specific pollutant discharge limits.** In addition, the company has developed a soil and groundwater contamination action plan should an incident occur.

## Ecosystem Protection

### Targets

**Of the five tech companies assessed, only Microsoft has set a time-bound ecosystem protection or restoration target especially related to freshwater ecosystems and disclosed supporting projects.**

Under its target to protect more land than it uses by 2025, the company is partnering with the National Fish and Wildlife Foundation and The Nature Conservancy to address areas most at risk

where the company operates, including several freshwater-related restoration projects. These include projects to restore the East Creek meadows and floodplain, and reverse environmental degradation caused by fragmented channels in California's Sierra Nevada and southern Cascade Mountain ranges.

**All five companies participate in ecosystem protection projects, with some specifically targeting freshwater ecosystems.** For example, **Apple** is actively involved in supporting the restoration of 2,500 acres of mangrove forests in Maharashtra, India, in collaboration with the Applied Environmental Research Foundation, an NGO aimed at the conservation of natural resources. This initiative also benefits the local community dependent on these mangroves for their livelihood. Some tech companies are leveraging their computing capabilities for the development of tools to enable ecosystem monitoring, protection, and decision-making to bolster water stewardship.

### Sustainable Sourcing

The tech supply chain relies heavily on the extraction of minerals like tin, tungsten, tantalum, and gold (commonly referred to as 3TG minerals or “conflict minerals” often mined in conflict afflicted areas). Unfortunately, practices within the extractive and mining industry often lead to severe degradation of water and ecosystems and are sometimes associated with conflict or human rights abuses in specific regions. **While most of the tech companies assessed have not set targets for sustainable sourcing, an evaluation of their sourcing policies reveals a focus on critical aspects like mineral traceability, use of alternative and**



**recyclable materials, and establishment of conflict-free mineral supply chains.** For example, **Apple's** Responsible Sourcing of Materials Standard extends to cover all primary and recycled materials, including tin, tantalum, tungsten, gold, and cobalt. However, tech companies are falling short in reporting how, if at all, they are ensuring that sourcing decisions consider environmental factors, such as preserving habitat integrity and safeguarding freshwater resources.

### Access to Water and Sanitation

**Microsoft is the only company to take action to strengthen WASH services in its supply chain.**

The company requires directly contracted suppliers to provide WASH services to workers as a condition of doing business. In 2021, Microsoft initiated a Supply Chain Water Stewardship Project in collaboration with the Alliance for Water Stewardship Asia Pacific (AWS A-P). As part of this partnership, a major supplier based in China has been piloting the program and has developed its first water stewardship plan, which includes improving water, sanitation, and hygiene services, while engaging the surrounding community and its own upstream suppliers.

In terms of community WASH, **Microsoft** has committed to providing 1.5 million people with access to clean water and sanitation as part of its broader goal to be water positive for its direct operations by 2030. To date, the company's efforts have been focused on Mexico, India, and Indonesia. **Amazon** has also been involved in community WASH efforts, collaborating with non-profits like Water.org and WaterAid to provide continued access to WASH to over 250,000 community members in India and Indonesia.

## Board Oversight

**Two out of five tech companies assessed have board level oversight of water risks and senior management incentives linked to water.** For instance, **Sony's** board is responsible for monitoring and overseeing sustainability, including water-related risks, and regularly discusses water-related risks and opportunities. Additional compensation of Sony's executives beyond regular salaries is based upon an individual's efforts to accelerate ESG initiatives, including those tied to water management.

**Only Apple and Microsoft have disclosed evidence that their corporate boards and senior management are considering water risks and opportunities as integral components of their business planning activities and investment decisions for their assets and/or supply chain.** In particular, these two companies have identified various water-related risks, including water stress, drought, flooding, and storm damage, as significant considerations in their corporate planning. **Apple**, for example, has addressed drought risk in Northern California, where its headquarters is located, acknowledging that it may face potential regulatory challenges due to drought induced water restrictions, impacting its social license to operate. To mitigate these risks, the company has implemented various water saving measures, such as water recycling and landscape level water reduction efforts. In Prineville, Oregon, where Apple has a data center, the company has partnered with the city to create a 180-million-gallon aquifer storage and recovery system. The system holds water throughout the year, allowing Apple to use it during peak demand months and mitigating the seasonal impacts of water shortages. On the other hand, **Microsoft** assesses its facilities' vulnerability to temperature extremes, water stress, storm damage, and coastal flooding. The company uses these findings to inform its long-term real estate investments and data center designs, ensuring that its infrastructure is resilient in the face of water-related challenges.



## Public Policy Engagement

**Three companies (Microsoft, Alphabet, and Apple) proactively advocate around water-related issues. Microsoft is the only company to provide disclosure on how it ensures its lobbying is aligned with its water stewardship strategies. Google** uses data analytic tools to contribute to sustainable water management initiatives. Specifically, its Freshwater Ecosystems Explorer tool is freely available to help decision makers monitor changes in surface water. This tool provides insights at various geographic scales, from the national level down to regional and basin levels, facilitating informed decision-making regarding water resources. Google has supported the development of Global Water Watch, an online open-source platform designed to democratize information on water resources. The tool provides valuable data to a wide range of stakeholders, including policymakers, conservation organizations, the private sector, and local communities, to enhance collaborative efforts in improving water management practices.