Playbook

Beginning a corporate water stewardship program

Prepared by Amazon

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Get started

This playbook is a roadmap for corporate water stewardship, guiding companies through the intricacies of understanding and managing water-related issues and impacts. This guide emphasizes the need for projects that deliver tangible benefits to communities and ecosystems, and offers tools and strategies to make a difference in sustainable water management.

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Map your company's risk and impact

The risk that water-related hazards such as scarcity, pollution, and flooding pose to a company's business and to the communities in which it operates varies from region to region and often from watershed to watershed. Although conserving natural resources is advisable even when they are plentiful, the high costs associated with transporting water over long distances and the geographical isolation of groundwater aquifers and surface water sources mean that water conservation efforts in one area, such as Seattle, do not alleviate water scarcity issues in another, like southern California. Consequently, many corporate water stewardship programs and objectives are geographically targeted.

A first step in designing a water stewardship program is to determine how the geographic distribution of water hazards overlaps with the company's operations and supply chains. This involves mapping hazards using publicly available databases like World Resources Institute's Aqueduct database, and then using business-specific data to translate each hazard to risk through factors that quantify exposure and vulnerability of associates, customers, other community members, physical assets, and supply chains to the hazards. There are no hard and fast rules about which business data should be used for this translation, but the mapping should be as local as internal datasets allow, at site or asset level if possible. Risks can then be tied to costs and financial opportunities, and resources for water-conserving infrastructure or replenishment projects can be allocated accordingly.

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Decide on the right water metrics and conduct a water audit

There is no single source of truth for water accounting. Accounting for water impacts is most often done through simple metrics like ground or surface water withdrawn, water consumed (water withdrawn minus water discharged), or a water intensity metric like water consumed per unit revenue, per product shipped, per person-hour of employees, or per kWh of electrical energy (when water is used for cooling servers in a data center). As discussed below, the metric used in most public-facing corporate water stewardship programs is net water withdrawal or consumption after deducting volume from replenishment activities from watersheds where the company has significant operations. A water intensity metric is also useful for comparing water use efficiencies across buildings of different sizes, employee counts, and throughputs. If a company operates multiple types of businesses, a different water intensity metric can be assigned to each business depending on how water is used in that business' operations. In an office building, for instance, the relevant metric is likely water withdrawn (or consumed) per person-hour while in a grocery store (where water is primarily used for processing food) the more relevant metric is water withdrawn per unit sold/shipped. The metric(s) chosen should be readily collectible across a company's operational sites, either through utility invoices or on-site metering, and throughout the value chain, encompassing both supply chains and customer product usage.

After aligning on water metrics, the next step is to conduct a water audit of your company's direct operations. One can conduct such an audit in partnership with a specialized consulting firm, which outlines the water lifecycles in a company's building types and makes quantitative estimates of potential water savings through various measures based on the data. An analysis of a company's current state includes establishing a boundary policy that separates the direct operational water footprint from the indirect footprint, which is water used in supply chains, water embodied in construction, and water used by customers in consuming some types of products.

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Construct a high-level footprint of highest-water-risk commodities

For companies that don't use water directly in the manufacturing process or for cooling, the direct operational water footprint is typically a small fraction of the supply chain water footprint. This includes the entire lifecycle footprint of all sourced commodities (including water embodied in construction of all operational sites), energy production, and water used by customers while consuming certain products, depending on the company's boundary policy. Insufficient data often hinders comprehensive mapping of the supply chain, making direct measurement of the indirect footprint challenging. However, it's crucial to quantify the impact of water-intensive commodities whose supply chains traverse water-scarce regions, rather than focusing solely on the entire footprint.

A coarse-grained view of how a company's indirect water footprint is divided among categories of commodities can be constructed using procurement data and economic input-output (EIO) data, which are average conversion factors between quantities of a certain category of commodity and water used in their production from point of origin to point of use. A bottom-up approach is to collect more fine-grained procurement data on individual commodities and use literature values for water intensity during each tier of the supply chain.

Once water intensities of top commodities are calculated, they should be considered alongside the overlap of the supply chains of these commodities with water scarce regions, and the company's visibility into and influence over these supply chains, in order to prioritize commodities for abatement action.

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Design an operational efficiency plan

As with other environmental impact areas, it is good practice to exhaust "inside-the-fence" operational efficiency measures before pursuing replenishments (see section 6). It is very rare for a company to be able to operate with zero water withdrawal, even at a single site. However, there are many opportunities to conserve, reuse, and recycle depending on how water is used at the site (in particular, whether most of it is potable or non-potable).

With some exceptions, operational water use efficiency projects fall into two buckets: "low-hanging fruit" projects with relatively low complexity and short payback periods, and more expensive projects that can make a site nearly water-independent but have a longer payback period. The first category includes, but is not limited to, fixtures that conserve water such as faucet aerators and timers, low-volume-flush toilets and urinals, nearly waterless fixtures, table-top recirculating defrosters for food thawing, planting native vegetation, and "smart" (networked) water meters that save water through leak detection. These projects are part of a baseline operational efficiency program.

The second category includes in-building rainwater harvesting systems to supply non-potable or sometimes potable water demand, wastewater recycling systems, and purification systems either for intake water so that external sources of recycled water can be used or discharged water so that used water does not need third-party treatment before reentering the watershed. Rainwater harvesting and wastewater recycling solutions typically require that a building be dual-piped to separate potable and non-potable water, so they are best implemented in new construction rather than as retrofits of existing buildings. While more expensive per unit volume of water saved, water circularity systems are a path to truly scarcity-resistant buildings. Their payback periods can vary widely, so they're worth exploring on a site-by-site basis.

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Establish a replenishment program

Replenishment programs deliver water back to the communities where a company operates after operational efficiency measures have been exhausted. The general types of projects are:

1) watershed restoration (groundwater recharge, green infrastructure, wetland creation)
2) water access (rainwater harvesting, water treatment, piped water connections)
3) water efficiency (irrigation efficiency, leak repair)

The following criteria can be used to assess and select replenishment projects for funding:

Hydrologically connected to operations

Support replenishment projects that are as close as practicable to where the company uses water. For watershed restoration projects, this is the same watershed from which supply for buildings is sourced. For water, sanitation, and hygiene (WASH) projects, prioritize opportunities that drive positive impact within the municipalities where buildings are located. If WASH needs are greater in outlying rural areas, consider expanding boundaries to ensure the company can provide the most meaningful impact to the community as possible.

Need-based

Within the replenishment portfolio, aim to address the greatest needs in a given watershed. In some cases, this involves increasing the total volume of water available through projects like groundwater recharge and in other cases it involves improving water quality or expanding water access. There is no one-size-fits-all solution.

Quantifiable

Projects should deliver a defined quantity of water to a watershed or community. As a best practice, these quantities should be validated by third-party experts before making an investment.

Additional

Invest in projects that would not occur without the company's support, not in "credits" for projects that have already been completed.

Cost effective

With every dollar invested, seek to do the most good for the community and ecosystem.

Innovative

Whenever possible, work to incorporate innovative technologies, business models, and financing models into replenishment projects.

Multi-benefit

Support projects that have multiple benefits wherever possible including biodiversity, carbon mitigation, community green space access, and environmental justice.

Delivered by established collaborators

Work with collaborators that have an established track record of project success in a given region and we can be sure will deliver durable benefits that respond to a key need for that watershed and/or community.

Monitored for longevity

Seek projects that have a useful life and therefore deliver volumetric benefits for a long period of time. Certain projects such as permanent water rights acquisitions may last for longer periods.

A key ingredient in maintaining a credible replenishment program is the use of well-established, science-based measurements and accounting of the volumes of water replenished. The methodologies in the Volumetric Water Benefit Accounting (VWBA) guide are the industry standard to estimate volumetric benefits from replenishments and can be utilized (preferably by a neutral third-party) before funding a project, and once projects are complete. Companies should work with project collaborators and third parties to monitor and maintain projects and validate volumetric benefits on an annual basis. This may include satellite imagery and site visits to confirm that watershed restoration projects are still functioning. Certain types of projects may not require regular monitoring and maintenance, such as work to connect households to a piped water supply. In those cases, the water utility supplying water is typically responsible for maintaining the system.