Volumetric Water Benefit Accounting 2.0

Development of additional principles, terms, and best practices for reporting the volumetric benefits of water stewardship activities

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Introduction

A generation of corporate volumetric water goals is well into the implementation phase, and there have been some key lessons from the early leaders. The first is that there is a need for vetted pathways to deliver against these goals and standardized, consistent guidelines for companies to follow when reporting the benefits of water stewardship projects that provide guardrails to ensure credibility of claims. Current Volumetric Water Benefit Accounting (VWBA) guidance (VWBA 1.0) provides general programmatic principles but does not include details, such as project eligibility to generate volumetric water benefits (VWBs) and guidance on how companies can credibly claim, track, and report VWBs. Second, increased demand for more ambitious enterprise and value-chain goals requires clear and defensible principles on accounting and allocating the benefits of collective action projects. Third, with the scope of water challenges that we face, detailed guidance is needed to incentivize companies toward more transformational solutions that enable additional benefits or catalyze new opportunities.

In response, the World Resources Institute (WRI), LimnoTech, Bluerisk, and Bonneville Environmental Foundation (BEF) have partnered to develop an update to VWBA. We are releasing a series of five installments on a rolling basis during 2023 and are seeking feedback from corporate water stewardship practitioners and experts. Each installment covers a specific topic and provides recommendations based on experiences and insights gleaned from implementing water stewardship strategies, programs, projects, and activities. **These installments are draft interim products** to later be consolidated in a formal update to VWBA. The installments include the following components:

1. **Project eligibility criteria and selection considerations**, including
    - project eligibility criteria that are essential for a project to generate a VWB and
    - project selection considerations that support the identification, ranking, and selection of projects with a capacity to generate VWBs.
2. **Principles for making credible VWB claims** (including expectations for duration and attribution of claims), resulting from
    - activities funded by a single entity,
    - activities funded collaboratively by two or more entities, and
    - enabling projects or initiatives.
3. **Principles for VWB tracking and reporting**, including
    - evaluation and reporting of project viability, frequency, techniques, and documentation and
    - considerations around project variability.
4. **Updated VWB calculation methods**, including
    - new activities and methods and
    - guidance on how to apply each method to ensure consistent, credible, and trusted results across any activity type.

The information provided in this document reflects best practices in corporate water stewardship, drawing from years of project team and corporate partner expertise. The document will have linkages and synergies with other guidance and reporting efforts, including but not limited to Freshwater Science-Based Targets (SBTs), the Water Resilience Coalition (WRC) commitment to Net Positive Water Impact (NPWI), Water Quality Benefit Accounting (WQBA), Wash4Work's Standardized Accounting Method for the Co-Benefits of WASH, the Alliance for Water Stewardship (AWS) Standard, and others.

More information on these linkages will be referenced in the updated VWBA 2.0 publication where appropriate.

The document is not a prescriptive standard; it contains voluntary guidance intended to assist companies in making well-founded and substantiated water stewardship claims that reflect genuine efforts to reduce environmental impacts and promote sustainable practices and outcomes. Companies are also encouraged to consider their environmental impact and social responsibilities beyond the scope of this document's guidance. In other words, the application of this guidance should complement sustainable and just business strategies and water resource-management commitments that consider current and future water risks and impacts.

Process

The work is being conducted in two primary phases with funding from 14 corporate partners:

PHASE 1: Develop Installment Documents (January 2023–February 2024)
The installments are led by LimnoTech, Bluerisk, and BEF. Drawing from project team expertise and insights from corporate partners, the project team documented the key problem, root cause, desired outcome, and success criteria for each installment. The team then conducted a series of three in-person working sessions to align on technical details to be included in each installment and actively develop document content. The drafts are shared with corporate partners and other technical experts for initial review and feedback and are being published on a rolling basis.

PHASE 2: Synthesize Installments and Publish VWBA 2.0 (February 2024–July 2024)
Once all installments are released, WRI will consolidate them into an updated VWBA 2.0 publication and integrate each installment into the flow of the original publication. WRI will simultaneously conduct a formal internal and external peer review of the updated working paper. The project team will refine, expand, and publish VWBA 2.0, based on critiques and recommendations on the installments and during the formal review process. The updated publication will be launched at World Water Week in 2024.

Installment Overviews

Installment 1: Project Eligibility Criteria and Selection Considerations

Objective: Development of a decision framework to provide companies with clean and updated guidance related to selection of effective water stewardship projects that have the potential to generate VWBs.

Problem Statement: As more companies are setting replenish, water balance, or similar volumetric goals, companies are seeking clearer criteria that should be met for water stewardship projects to be eligible for a VWB quantification. Lacking this guidance, practitioners are making individual decisions about these types of important programmatic considerations. Guidance on determining project eligibility and considerations for identification, ranking, and selection of projects will provide consistency and assurance to companies that their decisions are aligned with current best practice.

Desired Outcome: Clear and comprehensive guidance for identifying, prioritizing, and selecting water stewardship projects based on best practice that is sufficiently flexible to accommodate new activity types that may arise in future years. The guidance includes project eligibility criteria that are essential and project selection considerations that support the identification, ranking, and selection of projects.

Installment 2: Principles for Making Credible VWB Claims

Objective: Development of a set of principles that companies can follow to inform what constitutes a credible VWB claim, while incentivizing projects that address chronic, long-term water challenges and their root cause.

Problem Statement: Companies work hard to ensure they are not over-claiming VWBs and to meet their enterprise- and site-level water goals in the desired time frame. However, they lack clear guidance on how to credibly claim VWBs against any type of volumetric water goal, including water replenishment, contextual, or other volumetric water goals for water stewardship projects across the value chain.

Desired Outcome: Updated VWBA guidance with clear, practical instructions on how to claim VWBs, including eligibility, duration, and attribution.

Installment 3: Principles for VWB Tracking and Reporting

Objective: Establishment of clear principles to guide evaluation, confirmation, and reporting of project outputs and volumetric benefits that result from corporate investments in diverse and variable projects that address shared water challenges.

Problem Statement: Companies contribute to water stewardship efforts based on the expectation that funded projects will produce tangible outputs that lead to outcomes that address shared water challenges and deliver predicted or expected VWBs that companies can claim toward sustainability goals. Companies seek projects where tracking and reporting of project activities can be funded and/or facilitated in a way that provides credible information to substantiate VWB claims and progress against goals.

Desired Outcome: Clear guidance to inform efficient and effective project tracking and reporting activities to substantiate Direct VWB claims.

Installment 4: Updated VWB Calculation Methods

Objective: Development of or updates to volumetric water benefit quantification methodologies for several relevant activity types that were not fully addressed in the first VWBA publication.

Problem Statement: Additional guidance is needed on how to quantify the VWBs of some activity types that were not fully addressed in the original VWBA publication, and new methodologies are needed for some new activities.

Desired Outcome: A set of new and revised indicators and calculation methods for quantifying the VWBs of a range of activity types, as well as a decision framework with clear, overarching principles and processes for indicator and method selection and application. The new and revised indicators and methods are consistent with VWBA principles, updated from the original publication, and are globally applicable.

Installment 3: Principles for Tracking and Reporting Volumetric Water Benefits (VWBs)

Introduction

Companies support water stewardship efforts with the expectation that funded projects will contribute to outcomes that address shared water challenges and deliver VWBs that they can claim against their sustainability goals.

Prior to project implementation, water stewardship practitioners estimate VWBs based on the expected performance of a planned project over a specified period of time. After all project implementation activities are completed, a project's performance should be documented and communicated through the intentional collection and assessment of information confirming that the project was implemented as proposed, VWBs are being delivered, and key project performance factors necessary to generate VWBs are established and sustained. The purpose of this installment is to provide principles to inform and guide efficient and effective project-level tracking and reporting that allows companies to substantiate direct VWBs.

Tracking and Reporting Direct VWBs

A wide range of water stewardship projects are implemented in diverse locations and circumstances where consistent data collection to support performance tracking and reporting can be challenging. Nevertheless, companies seek projects where tracking and reporting can provide credible information to substantiate VWB claims and progress against goals. It is also important that tracking and reporting be practical and feasible for project implementers to carry out, including developing realistic and manageable tracking and reporting strategies that can accommodate long-term, large-scale, and/or programmatic approaches that generate VWBs. The following principles are intended to guide credible tracking and reporting to substantiate VWB claims and progress against goals:

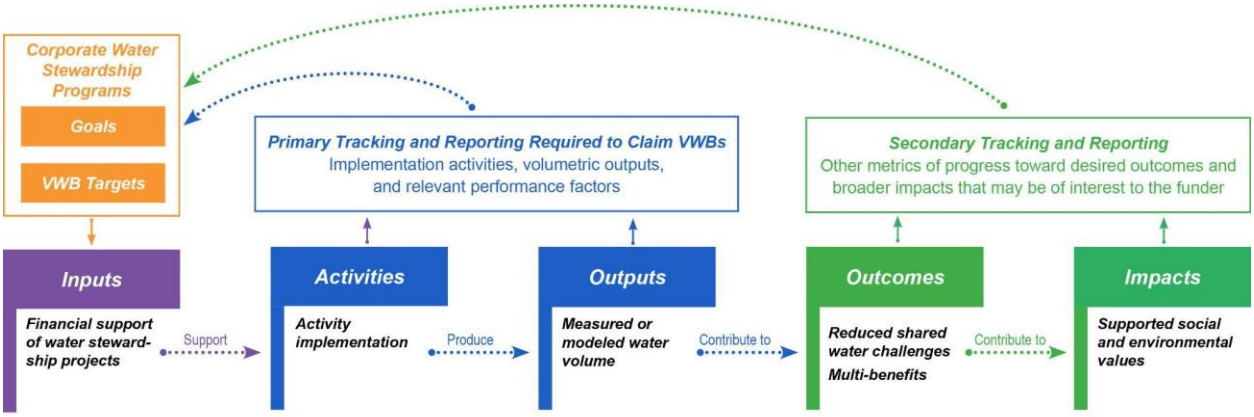
1. Focus tracking and reporting on confirming key implementation activities, measured or modeled VWB outputs, and any performance factors on which VWBs are contingent.
2. Align temporal aspects of project tracking and reporting with annual VWB claims.
3. Assess and understand feasibility, cost, and duration of project tracking and reporting.
4. When possible, obtain available tracking and reporting information related to longer-term outcomes and multiple benefits.

Principles for Project Tracking and Reporting Requirements

Principle 1: Focus tracking and reporting on confirming key implementation activities, measured or modeled VWB outputs, and any performance factors on which VWB outputs are contingent.

A project that meets the eligibility criteria outlined in Installment 1 offers assurances that it is eligible to generate expected VWB outputs that contribute to desired outcomes. For such projects, primary project tracking and reporting is required to make a VWB claim and can focus on implementation activities and VWB outputs when a clear theory of change demonstrates how the supported activities will address shared water challenges and contribute to long-term desired impacts (Figure 1). Secondary tracking and reporting of outcomes, multi-benefits, and long-term impacts may also be desired but is not required to make a VWB claim (Principle 4).

Figure 1. Water stewardship project impact pathway



Source: Authors.

Primary project tracking and reporting should focus on confirming completion of key implementation activities, measured or modeled VWB outputs, and, when VWB outputs are not directly measured, confirming that key performance factors necessary to sustain project function are in place and maintained over the claim period.

- **Implementation activities** are essential project implementation tasks that must be completed before the project can deliver its intended VWB outputs. Tracking and reporting of these activities confirms that the essential project activities have been successfully completed and that the project is positioned to deliver expected VWB outputs.
- **VWB outputs** are directly measured or modeled water volumes that the project is expected to produce.
- **Performance factors** are conditions or key project-related elements that must remain in place (year over year) to sustain a project's ability to deliver VWB outputs over the claim period. The type or relative importance of performance factors is project- and context-specific (Table 1).

If primary tracking and reporting suggest a change in performance factors that will affect annual VWB outputs as compared to pre-project design or prior year conditions, VWBs should be recalculated.

Table 1. Recommended performance factors to help track projects delivering volumetric water benefits

Performance factor type			
Legal/governance/ agreement	***Hydrologic/biophysical***	***Structural***	***Operational/behavioral***
Is the project's ongoing volumetric performance contingent on certain legal, policy, authorization, permitting, or enforcement elements that may or may not be approved, renewed, or assured each year?	Is there significant hydrologic/environmental variation that directly affects annual volumetric performance? And/or are historical hydrologic data increasingly less predictive of current conditions due to climate change or other factors?	Does the project require certain structural (natural or non-natural) components that may be subject to failure or underperformance and/or require annual maintenance to sustain performance?	Does the project rely extensively on ongoing management, behavior, maintenance, and/or human inputs to sustain function?
Example performance factors that can influence VWB outputs			
• Time restricted permits • Water lease agreements • Conservation easement compliance • Land management agreements	• Biophysical processes critical to fulfill project function, such as survival of planted trees or wetland vegetation • Hydrologic conditions needed to fulfill project function, such as adequate precipitation or runoff	• Control structures or irrigation infrastructure used to divert and deliver water • Rainwater/stormwater delivery and catchment systems • Well systems used to deliver water for WASH	• Agriculture producer's application of management practices • Irrigation district's management of water diversions • Water conservation practices implemented by users

Source: Authors.

Considerations for how to meet Principle 1:

In cases where direct measurement of annual VWB outputs is feasible or practical, initial confirmation of the completion of implementation activities and subsequent annual tracking and reporting of measured volume delivery is sufficient.

- ***Project Example 1****: Water leasing project delivers a measurable volume of water annually to enhance stream flows to benefit recreation, water supply, or fish and wildlife habitat. Track and report actual measured volume delivered annually to the stream.*
- ***Project Example 2****: Groundwater recharge project delivers a tracked annual quantity of water to mitigate groundwater overdraft conditions. Track and report actual measured volume of water delivered annually via aquifer recharge system.*

- ***Project Example 3****: Irrigation conservation project deploys technology and infrastructure to achieve and track reductions in annual groundwater pumping. Track and report actual volume of reduced annual groundwater pumping.*

In cases where direct measurement of annual VWB outputs is not feasible or practical, tracking and reporting should confirm completion of implementation activities and annually confirm performance factors on which VWB calculation methods are based and sustained project function and viability depend.

- ***Project Example 1****: Project permanently removes levee to allow natural hydrologic connection between river channel and riparian wetlands to facilitate annual flooding during high flow periods. Track and report (a) completion of levee removal; (b) ongoing hydrologic conditions to assess whether the inputs and assumptions used to model long-term VWBs remain conservative and defensible; and (c) modeled VWB outputs (if system is functioning per hydrologic and design expectations).*
- ***Project Example 2****: Project permanently grades and recontours urban drainage to capture and infiltrate stormwater and reduce pollutant loading of adjacent surface water bodies. Track and report (a) completion of grading and contouring per project design; (b) confirmed maintenance and function of stormwater capture and processing systems to ensure that they continue to function as designed; and (c) modeled VWB outputs (if system functioning per hydrologic and design expectations).*

Principle 2: Align temporal aspects of project tracking and reporting with desired annual VWB claim.

Following project implementation and for each year in which a VWB claim is made, companies should obtain key tracking and reporting information to confirm VWB outputs and key performance factors.

Considerations for how to meet Principle 2:

While in most cases annual tracking and reporting provide the best way to validate ongoing project performance, there are circumstances where it may not be useful, practical, or feasible to obtain key information. Internal policy, budget availability, capacity limitations of project implementers, access to project sites, project type, weather, and other factors may limit or preclude collection of annual tracking and reporting information. Based on case-by-case circumstances, companies should work closely with project implementers to define the nature, frequency, and duration of tracking and reporting to meet the needs of the company and reflect the project circumstances and capacity of project implementers.

For example, tracking information for a 10-year project may be collected and reported annually for a pre-determined period of time (i.e., three to five years) up to a point at which a project is expected to reach a state of stable function (e.g., new or enhanced gray or green infrastructure that is built and operated in a manner that demonstrates stable performance and meets original design criteria). At that point, the company and project implementer can reevaluate the nature and terms of tracking and

reporting to determine if a less frequent or reduced level of tracking and reporting can provide sufficient assurance of continued project performance for the remaining years of the claim period.

Principle 3: Assess feasibility and plan for project tracking and reporting.

Companies should work collaboratively with project implementers to define the scope of tracking and reporting requirements needed to meet the company's information needs, account for cost and feasibility of collecting and documenting key information, and realistically evaluate the project implementer's capacity to carry out tracking and reporting actions over the desired term.

Considerations for how to meet Principle 3:

Many local water stewardship organizations operate with limited resources and often lack capacity and funding to carry out tracking and reporting activities beyond those that directly inform their own progress toward strategic goals. If desired tracking and reporting requirements represent an added financial and capacity burden, companies should integrate those costs into the project budget to ensure that tracking and reporting activities are supported over the duration of the VWB claim. If desired reporting and tracking requirements are realistically beyond the capacity of project implementers, companies should identify and use other agents, tools, or pathways that can perform key tracking and reporting functions over the duration of the VWB claim.

Adopting a tracking and reporting approach that provides value to both the company and project implementers is a useful objective, and it is desirable to base company tracking and reporting needs on reporting systems that may already be funded and in place.

Principle 4: When possible, track and report longer-term outcomes.

At present, most corporations prioritize selection of project-focused, transactional activities that are poised for implementation and will deliver near-term VWBs. Primary tracking and reporting for these projects provide sufficient information to make VWB claims.

However, some companies may have interests that extend beyond project-level VWB outputs and may seek information regarding progress toward desired outcomes and long-term impacts. (See Secondary Tracking and Reporting in Figure 1.) These interests may also include delivery of multiple benefits, such as water quality improvement, ecosystem biodiversity, or socioeconomic improvement. A company's involvement at this level requires a deeper and longer-term commitment with a higher degree of local interaction and sustained financial participation—for example funding multiple priority projects that address a shared water challenge in a focal geography over time.

Considerations for how to meet Principle 4:

Funding for long-term tracking and reporting that is focused on outcomes and strategy effectiveness is often difficult to secure, and companies with an interest in and understanding of the high level of sustained commitment required to accomplish this important but challenging task may be able to fund or participate in longer-term roles to facilitate tracking of outcomes or strategy effectiveness.

There are also situations where systems and funding may already be in place to track progress toward longer-term desired outcomes. Many basin- or landscape-scale initiatives are supported by multiple public and private funders, each with their respective tracking and reporting needs and requirements. For example, regional water stewardship initiatives led by a partnership of project implementers (e.g., tribes, agencies, and nongovernmental organizations) will sometimes have long-term monitoring systems or plans that are designed to evaluate strategy effectiveness and progress toward long-term goals. Where available, companies may work with project implementers to obtain available information that evaluates broader levels of impact. Such information can be used to improve understanding of strategies and challenges, inform future action, and augment project reporting.

- ***Project example 1:*** *Managed aquifer recharge project delivers (and tracks) water deliveries annually to support groundwater recharge (and create VWBs). Over time, the project seeks to increase discharge and duration of flow in nearby springs and groundwater-dependent streams. Existing gauging systems and capacity are in place to facilitate long-term tracking and reporting of changes in spring flows or hydrographs. A corporate funder remains engaged with project implementers over many years to obtain and analyze this information as it becomes available to understand larger-scale outcomes.*
- ***Project example 2:*** *A large basin-scale initiative to recover a formally designated at-risk aquatic species is led by a diverse partnership of state and federal agencies, tribal governments, and local and regional NGOs and is supported by a mix of public and private funding programs. The effort consists of an integrated set of strategies with high levels of annual funding that support planning, partner capacity, project design and implementation, and long-term monitoring to track progress toward recovery goals. A corporate funder may work with project implementors over time to access reports, data, or other information already being collected by the larger partnership as part of the scope of tracking and reporting to evaluate basin-scale outcomes and impacts.*

Glossary

Term	Definition
Activity	The interventions whose effects on natural and social capital are considered "outputs" and can be analyzed and quantified (adapted from WBCSD 2017). A water stewardship project may encompass multiple activities.
Allocation	The distribution of volumetric water benefits among organizations where multiple organizations share a common volumetric water benefit.
Baseline	The beginning points at which an organization or activity will be monitored and against which progress can be assessed or comparisons made (adapted from AWS 2019).
Benefit	Long-term social, economic, and environmental effects resulting from the implementation of a project or activity, either directly or indirectly, intentionally or unintentionally. Benefits, which are the ultimate result, derive from outcomes and can also be referred to as positive impacts—those impacts that directly or indirectly, intentionally or unintentionally, generally benefit stakeholders and/or the environment (adapted from AWS 2019). See also "Volumetric water benefit."
Catchment	The area of land from which all surface runoff and subsurface waters flow through a sequence of streams, rivers, aquifers, and lakes into the sea or another outlet at a single river mouth, estuary, or delta (adapted from AWS 2019). It is important to consider that catchments • include associated groundwater areas, but surface and subsurface waters often have different catchment boundaries and degrees of connection; • may include the totality or portions of water bodies, such as lakes or rivers; • are also referred to as watersheds, basins, or sub basins; and • may be interconnected with infrastructure. Interventions in one can result in benefits or detriments in another.
Claim	Any statement, accounting, or communication regarding the delivery of existing or anticipated VWBs resulting from voluntary investments or actions taken by the entity making the claim.
Collective action	Coordinated engagement among interested parties within an agreed-upon process in support of common objectives. Water-related collective action refers to specific efforts to advance sustainable water management, whether through encouraging reduced water use, improved water governance, pollution reduction, river restoration, or other efforts.
Direct VWBs/Direct Benefits	VWBs resulting from a company's direct contribution to an activity (e.g., monetary, or in-kind contribution) and proportional attribution of benefits.
Gray infrastructure	Built structures and mechanical equipment, such as reservoirs, embankments, pipes, pumps, water treatment plants, and canals. These engineered solutions are embedded within watersheds or coastal

	ecosystems whose hydrological and environmental attributes profoundly affect the performance of the gray infrastructure (Browder et al. 2019).
Green infrastructure	(Also sometimes called natural infrastructure, or engineering with nature) Green infrastructure intentionally and strategically preserves, enhances, or restores elements of a natural system, such as forests, agricultural land, floodplains, riparian areas, coastal forests (such as mangroves), among others, and combines them with gray infrastructure to produce more resilient and lower-cost services (Browder et al. 2019).
Goal	A description of a desired objective, set at the enterprise or site level, against which the company and other entities can evaluate progress (adapted from CEO Water Mandate 2014). This term is used synonymously with other commonly used language to describe desired objectives, such as targets and commitments.
Impact	Changes in the well-being of those affected over the longer term (WBCSD 2017). In the context of water stewardship, impact refers to the positive or negative long-term social, economic, and environmental effects resulting from the implementation of a project or activity, either directly or indirectly, intentionally or unintentionally. Impacts, which are the ultimate result, derive from outcomes. Impacts may be beneficial and called benefits (those impacts which directly or indirectly, intentionally or unintentionally, generally benefit stakeholders and/or the environment) or adverse (those impacts which directly or indirectly, intentionally or unintentionally, are generally harmful to stakeholders and/or the environment) (adapted from AWS 2019).
Implementation activity	The essential project implementation tasks that must be completed before the project can deliver its intended outputs.
Indicator	A quantitative factor or variable that provides reliable means to measure the achievement of outputs or outcomes.
Input	The data and information necessary to estimate the volumetric water benefits of an activity.
Performance factor	The conditions or elements that are required to be in place to sustain a project's ability to deliver VWBs over the claim period.
Practitioner	General term to refer to anyone in the corporate water stewardship space.
Project	A single water stewardship activity or multiple activities implemented in a specific site or range of sites.
Project outputs	The results of the activity in question (WBCSD 2017). Outputs derive from activities and lead to outcomes and ultimately impacts (adapted from AWS 2014).
Project outcomes	Near- or long-term changes in the status or condition of key aspects or processes in social or ecological systems that contribute to (or are prerequisites of) broader-scale desired impacts. Outcomes result from outputs.

Replicable	An activity that can be repeated in other locations by the same or other actors (e.g., installing a new type of canal liner).
Reporting	The formal development and sharing of information to communicate a project or program's progress toward achieving predefined objectives (or targets). The content and frequency of reporting is usually defined in a formal agreement.
Scalable	An activity that can increase in scale over time, (e.g., activity has a pathway to increase deployment over time).
Shared water challenge	The water-related issues that are of interest or concern in the catchment or area of interest (e.g., aquifer, municipality, town, state) and which, if addressed, will provide positive impacts or prevent negative impacts. Shared water challenges are not necessarily unique and may be the same for multiple sites or entities that rely on a water resource (adapted from AWS 2019).
Tracking	Measurement of key metrics to evaluate progress toward defined targets.
Volumetric water benefit	Water stewardship activity outputs, estimated in volume per unit of time, that help reduce shared water challenges.
Volumetric water benefit accounting	Method to estimate the volumetric water benefits of water stewardship activities, and associated guidance related to planning, project selection, and assessment.
Water balance goal	Organizational goal to balance a volume of water equal to what is consumed by the organization through interventions in catchments and communities outside the four walls of the organization.
Water risk	The effect of water-related uncertainty on an organization's objectives. It is important to note that water risk is experienced differently by every sector of society and the organizations within them and thus is defined and interpreted differently (even when the same degree of water scarcity or water stress is experienced or when it affects the same area of interest) (adapted from AWS 2014).
Water stewardship	The use of water that is socially and culturally equitable, environmentally sustainable, and economically beneficial, achieved through an inclusive process that involves site- and catchment-based actions (adapted from AWS 2019).