WASH BENEFITS ACCOUNTING FRAMEWORK

A Standardized Approach for Estimating and Valuing the Multiple Benefits of Corporate Investments in Drinking Water, Sanitation and Hygiene Access

Standardized Methods Report

WASH 4WORK

LimnoTech

UN GLOBAL COMPACT

CEO WATER MANDATE

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ORGANIZATIONS

WASH4Work
WASH4Work is a multi-stakeholder initiative launched in 2016 to mobilize business action on water access, sanitation and hygiene (WASH) in workplace operations, in communities where companies operate, and across supply chains. The WASH4Work Secretariat is hosted by the CEO Water Mandate.
WASH4Work | www.wash4work.org

LimnoTech
LimnoTech is a leading water resources and environmental science and engineering firm that provides water-related services to clients throughout the United States and internationally, including a specialized service area focused on water stewardship. LimnoTech supports companies with water stewardship program development and implementation, and collaborates with non-governmental organizations and multi-stakeholder initiatives to advance water stewardship.
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CEO Water Mandate
The CEO Water Mandate seeks to mobilize a critical mass of business leaders to address global water challenges through corporate water stewardship in partnership with the United Nations, governments, civil society and other stakeholders. The Mandate is a special initiative established in 2007 by the UN Secretary General and the UN Global Compact (UNGC) in partnership with the Pacific Institute.
CEO Water Mandate| www.ceowatermandate.org

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For more information and resources relevant to WASH, please visit the WASH4Work website www.wash4work.org.

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Figures and Tables

Abbreviations and Acronyms

NGOs	Non-Governmental Organizations
SDG	Sustainable Development Goals
SROI	Social Return On Investment
UN	United Nations
VWBA	Volumetric Water Benefit Accounting
WASH	Drinking Water, Sanitation, and Hygiene Access
WHO/UNICEF JMP	World Health Organization and United Nations Children's Fund Joint Monitoring Program
AWS	Alliance for Water Stewardship
WRC	Water Resilience Coalition
M&E	Monitoring and Evaluation
MFI	Microfinance Institution

Purpose and Background

As corporate water goals and targets expand in response to growing water-related risks, stakeholders have expressed the need for standardized methods for implementing and accounting for the multiple benefits of drinking water, sanitation and hygiene access (WASH) activities. This accounting framework is an outcome of a WASH4Work initiative that addresses this need by harmonizing existing WASH impact indicators and streamlining approaches that account for a range of socio-economic, environmental and institutional benefits of WASH activities. The framework integrates current leading practice and the evolving expectations of WASH stakeholders.

The primary objectives of the WASH4Work initiative are to:

- Strengthen the business case for WASH investments;
- Link WASH more comprehensively to Volumetric Water Benefit Accounting (VWBA);
- Move beyond beneficiary counting toward outcomes and impacts;
- Embed into the methods the integrated, systems-level approach of climate-resilient WASH; and
- Address fragmentation of existing approaches.

The scope of this accounting framework includes WASH-related activities related to employees/workplaces, communities/households, supply chains and the environment. Other types of non-WASH activities that can positively impact WASH, such as reforestation, were considered outside the scope of this effort and are addressed through separate initiatives (e.g., Reig et al., 2019; Brill et al., 2023).

The WASH benefit accounting methods described in this report are intended primarily for corporate water stewardship practitioners and their implementing partners. They are designed to be practical and globally applicable, and help practitioners measure, monitor and evaluate the improvements and multiple benefits of WASH activities and investments for people, workers, communities, the environment and companies.

The companion document to this report, **Introduction & Summary Report** (Hicks et al., 2024) describes this accounting framework in the larger context of corporate water stewardship.

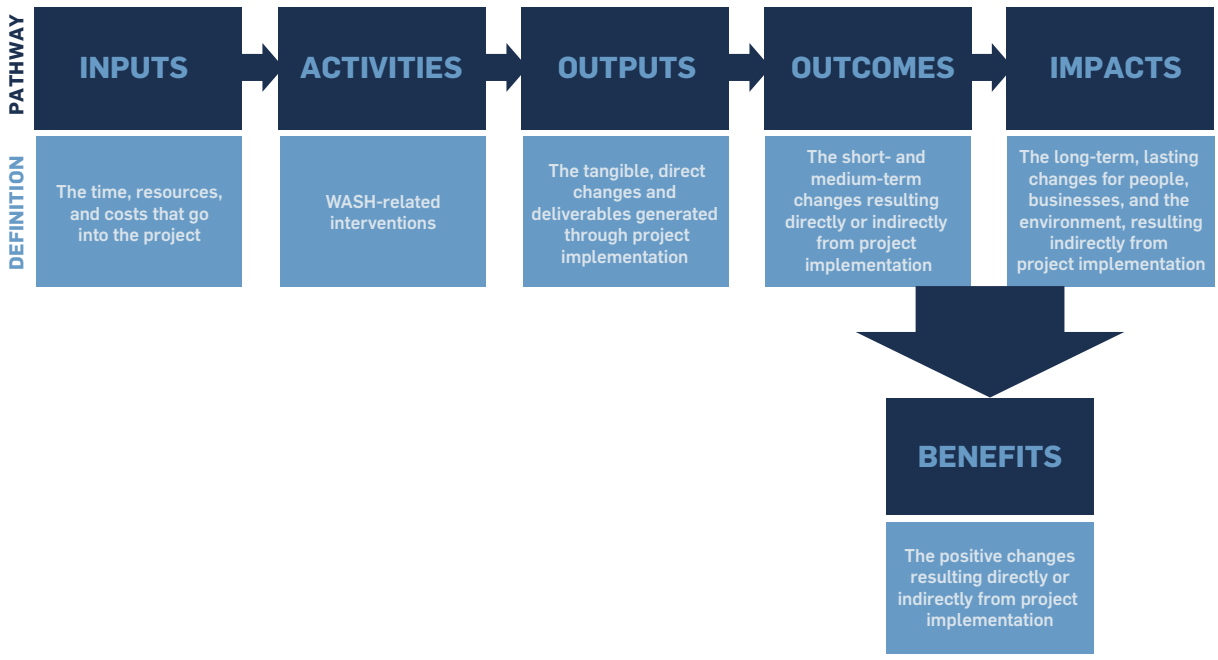
Accounting for the Multiple Benefits of WASH Activities

The general approach to accounting for the benefits of WASH activities follows the water stewardship activity impact pathway below (Figure 1), which was modified from WaterAid (2018), WBCSD (2019) and Reig et al. (2019) to enable corporate water stewardship practitioners to link WASH benefits accounting and reporting to other water stewardship activities and initiatives. This section provides an overview of the impact pathway, description of relevant activities, instruction for selecting indicators and methods, and specific indicators and methods for each component of the impact pathway.

IMPACT PATHWAY OVERVIEW

As shown in Figure 1, the impact pathway begins with inputs, referring to the time, resources and costs that go into the project. Inputs may be provided by companies, non-profit organizations, government agencies or community members. Activities generate outputs, which represent the change that occurs as a direct result of the project activities. Example measures of outputs include the number of new or restored water access systems, number of WASH-related jobs created, and volume provided. Outputs contribute to outcomes and impacts, which represent important socio-economic, environmental and institutional improvements over the short, medium and long term. Example measures of outcomes and impacts include the reduced distance traveled to access WASH services, reduced incidence of waterborne diseases and increased school attendance.

Figure 1. WASH Impact Pathway



Source: Modified from WaterAid (2018), WBCSD (2019) and Reig et al. (2019).

INPUTS AND ACTIVITIES

Table 1 provides a classification of WASH activities that were determined to be within the scope of this initiative. WASH activities have the potential to occur in the workplace, supply chain, household or community and are grouped into four categories:

- **Water Access:** The accessibility, availability and quality of the water source for drinking, cooking, personal hygiene and other domestic uses. This also includes measures to improve efficiency and resiliency of supply systems.

- **Sanitation Access:** The accessibility of sanitation facilities and services for the management of excreta.

- **Hygiene Access:** The accessibility of the conditions and practices that help maintain health and prevent the spread of disease.

- **Institutional:** The engagement in partnerships and collaborations that (1) build capacity for sustainable and resilient WASH, and (2) advocate for policies and financing to achieve water security for all.

Table 1. Classification of WASH Activities

CATEGORY	ACTIVITY	DESCRIPTION
Water Access	Access to water source	Infrastructure to access and distribute a surface or groundwater source, including well construction and rehabilitation, household water connection and piped water systems
	Water collection and storage	Collection and storage of water for direct use, including rainwater harvesting and storage tanks
	Water treatment	Water treatment for direct use, including a water treatment facility, household filters and wetland treatment systems
	Efficiency and resilience improvements	Reduced water use through technology, processes or products, including leak detection and repair in distribution systems or buildings
	Water access training and education	Training or educating people in key topics, including accessing water, sustainable water use, cost recovery, maintenance and management, and water quality management
Sanitation Access	Access to sanitation	Infrastructure to provide access to improved sanitation facilities, including workplace, household or community toilets
	Wastewater and sewage treatment	Facilities and systems designed to remove pathogens and pollutants from wastewater discharge, including sewage treatment plants and fecal sludge treatment plants
	Efficiency and resilience improvements	Sanitation systems designed to be climate resilient, energy efficient, low-carbon and enable the reuse of treated wastewater, sewage and fecal sludge
	Sanitation training and education	Training or educating people in key topics, including maintenance and management of sanitation infrastructure, gender-specific considerations and ending open defecation
Hygiene Access	Access to handwashing and/or bathing facilities	Availability of a handwashing or bathing facility with soap and water
	Access to menstrual hygiene products, facilities and information	Ability to access adequate menstrual hygiene products and facilities, including use of menstrual materials, access to a private place to wash and change and participation in activities during menstruation
	Hygiene training and education	Training or educating people in key topics, including proper handwashing, food hygiene and menstrual hygiene
Institutional	Stakeholder engagement	Initiating and sustaining relationships and conversations with and between stakeholders related to WASH access
	Community dialogues	Facilitating discussions of social and cultural norms that may form barriers to WASH, particularly related to gender
	Water governance	Direct engagement in water governance, policy and public water management, including community water committees
	Capacity building	Data collection and analysis, financing, planning, training and other activities that increase knowledge and build capacity related to topics such as climate-resilient WASH, integrated water resources management, urban planning, non-revenue water reduction, gender equity, WASH systems operations and maintenance and the importance of ending open defecation
	Monitoring and evaluation	Monitoring and evaluation of activity performance (e.g., water quality testing) and progress towards national, regional and/or global WASH-related targets (e.g., climate resilience, water security)
	Communications and reporting	Communicating and reporting on WASH access and activities

Climate-Resilient WASH

Climate-resilient WASH is defined as "WASH services and behaviours that continue to deliver benefits, or that are appropriately restored, within a changing climate context and despite climate-induced hazards" (WaterAid, 2021). It is considered the new direction of leading practice and advocated by WASH expert non-governmental organizations (NGOs) as well as WASH4Work. While not directly included in the activity classification, it has been considered as part of these methods and has the potential to relate to many of the defined activities. While access to WASH generally helps build resilience to climate change, activities should go further to incorporate assessment of climate risk and considerations to prepare for and adapt to climate impacts in WASH activities. According to the COP 27 Business Declaration for Climate Resilient Water, Sanitation & Hygiene, a climate-resilient WASH framework should include considerations for the assessment of climate risk, impacts of climate risks on WASH, preparedness and adaptation, solutions and implementation, testing and monitoring, and reporting and disclosure (WASH4Work, 2022).

INDICATORS AND CALCULATION METHODS

In this framework, output, outcome and impact indicators have been organized by category and flagged as either "core" (bolded in Tables 2 and 3) or "advanced."

- **Core indicators** are considered essential to monitor and report, where relevant. These indicators are generally relevant across WASH activities and have relatively simple and cost-effective methods of calculation. Core indicators are considered current leading practice.

- **Advanced indicators** reflect a broader range of benefits and are recommended to be considered where relevant. These indicators tend to be relevant to a narrow range of activities and/or have more resource-intensive methods of calculation. Advanced indicators represent emerging leading practice.

To support application, the methods are described in detail in Appendices A and B. Due to the nature of the core indicators, detailed methods (including equations and necessary inputs) that generally rely on primary data collected first-hand from the project are provided in Appendix A. Because advanced indicators require more resource-intensive methods of calculation and are likely to be project- or location-specific, Appendix B provides guidance rather than detailed equations.

It should be noted that organizations may have indicators, methods, inputs or assumptions they use that differ from this framework and yet are still valid and valuable.

Output Indicators and Calculation Methods

Outputs are the tangible, direct changes and deliverables generated through project implementation (definition adapted from WaterAid, 2018). Table 2 provides a categorized list of outputs, associated indicators and calculation methods, which are described in more detail in **Appendices A and B**.

Table 2. Recommended Outputs, Indicators, and Calculation Methods

BENEFIT CATEGORY	OUTPUT	INDICATOR	CALCULATION METHOD (APPENDIX)
Socio-economic	Improved drinking water, sanitation and hygiene access systems	**Number of new or restored water access systems**	**Number of systems (A-1)**
		Number of new or restored sanitation access systems	
		Number of new or restored hygiene access systems	
		Number of new or restored female-friendly sanitation/ hygiene systems	
	Increased number of beneficiaries	**Number of direct beneficiaries**	**Number of beneficiaries (A-2)**
		Number of indirect beneficiaries	Number of indirect beneficiaries
		Number of WASH-related jobs created	Number of WASH-related jobs created
	Improved provision of water	**Volume provided**	**Measured volume provided (A-3)**
			Estimated volume provided (capacity) (A-3)
			Estimated volume provided (beneficiaries) (A-3)
Environmental	Reduced pollution	**Volume treated**	**Measured volume treated (A-4)**
			Estimated volume treated (capacity) (A-4)
			Estimated volume treated (beneficiaries) (A-4)
		Reduced or avoided pollutant or nutrient load	Direct monitoring or modeling of reduced or avoided pollutant or nutrient load
	Reduced water demand	**Reduced withdrawal**	**Withdrawal (A-5)**
	Created resources	Amount or volume of beneficial resources created	Amount or volume of beneficial resources created
Institutional	Improved allocation of finances	**Amount of capital invested or mobilized for WASH**	**Capital invested or mobilized (A-6)**
		Amount of money saved	Dollars saved
	Improved opportunities	**Number of people trained or educated in WASH-related areas**	**Number of beneficiaries (A-2)**
		Number of people empowered with new leadership opportunities	
		Number of entrepreneurs or businesses supported	Number of entrepreneurs or businesses trained or supported
	Improved governance	Number of strategies or plans developed and/or implemented	Number of strategies or plans developed and/or implemented

Notes: Core indicators and methods are bolded while advanced indicators and methods are not. Core indicators and methods are described in detail in Appendix A while advanced indicators and methods are generally described in Appendix B

Note that the volumetric accounting methods related to output indicators (i.e., volume provided, volume treated and reduced withdrawal indicators) are fully aligned with the methods described in VWBA (Reig et al., 2019) and ongoing updates to VWBA (VWBA 2.0). The updates are being released in draft installments (Bluerisk, BEF, LimnoTech, & WRI, 2023, 2024) and the full report will be published by the World Resources Institute (WRI) later in 2024.

Outcome and Impact Indicators and Calculation Methods

Outcomes are defined as the short- and medium-term changes resulting directly or indirectly from project implementation (definition adapted from WaterAid, 2018). Impacts are defined as the long-term, lasting changes for people, businesses and the environment resulting indirectly from project implementation (definition adapted from WaterAid, 2018). Outcomes together with impacts are the benefits, defined as the positive changes resulting directly or indirectly from project implementation (definition adapted from Reig et al., 2019).

Outcomes and impacts have not been differentiated in this framework, recognizing the challenges in distinguishing between short- and long-term changes. Table 3 provides a categorized list of outcomes/impacts, associated indicators and calculation methods, which are described in more detail in Appendices A and B. Some indicators include multiple options for calculation methods.

Table 3. Recommended Outcomes/Impacts, Indicators and Calculation Methods

BENEFIT CATEGORY	OUTCOME/ IMPACT	INDICATOR [SDG TARGET, IF RELEVANT]	CALCULATION METHOD (APPENDIX)
Socio-economic	Improved safety and resilience of drinking water, sanitation and hygiene access	**Increased proportion of people with access to basic services (drinking water, sanitation or hygiene)**	**Service level (A-7)**
		Increased proportion of people with access to safely managed services (drinking water or sanitation) [6.1.1, 6.2.1]	
		Reduced time spent on water access activities	**Time savings (A-8)**
		Reduced distance traveled to access WASH services	Survey of the average distance traveled daily to access WASH services
			Survey of the percentage of the population within a 30 minute round trip walk from the nearest water source (including queuing)
		Reduced incidence of open defecation	Survey of the percentage of the population (or number of people) practicing open defecation
			Reported number of communities verified as open defecation free and the total number of people in those communities from census results
	Improved health and well-being	Increased proportion of people practicing good hygiene behavior at critical times	Survey of the percentage of the population practicing proper handwashing at critical times
		Reduced incidence of waterborne diseases	**Incidence of communicable diseases (A-9)**
		Reduced incidence of vector-borne diseases	
		Reduced healthcare spending	Reported average amount of annual healthcare spending per household
			Survey of the average annual healthcare costs per household
		Reduced prevalence and severity of water insecurity	Application of the Water Insecurity Experiences Scales survey methodology
		Increased mental well-being	Survey of the average perceived level of mental well-being, considering stress, anxiety, shame and embarrassment
		Increased safety while accessing WASH services	Survey of the average perceived level of safety while accessing WASH services
			Reported number of harassment and assault incidents annually while performing WASH activities
			Survey of the number of harassment or assault incidents experienced annually while performing WASH activities
		Increased sense of dignity related to WASH services	Survey of the average perceived sense of dignity related to WASH services
	Improved economic and livelihood opportunities	Improved affordability of WASH services	Survey of the average percentage of household annual income expended on WASH services
		Increased income	Reported average household income
			Survey of average time spent daily on income-generating activities
		Increased quality of life	Survey of the average perceived quality of life
		Increased social return on investment	Calculation of social return on investment
	Improved educational opportunities	Increased school attendance	Reported average number of missed days per student per school year
			Reported number of children in the community not attending formal school
	Improved gender equality	Increased role in household decision-making related to WASH for women	Survey of the average woman's perceived role in household decision-making related to WASH
		Increased proportion of positions in WASH management and leadership held by women	**Management and leadership (A-10)**
		Increased access to sanitation facilities when needed by women and girls	Survey of the percentage of women and girls that have had adequate access to sanitation facilities and products over the past year, when needed

BENEFIT CATEGORY	OUTCOME/ IMPACT	INDICATOR [SDG TARGET, IF RELEVANT]	CALCULATION METHOD (APPENDIX)
Environmental	**Improved water quality (surface or groundwater)**	Increased proportion of domestic and/or industrial wastewater flows safely treated [6.3.1]	Reported percentage of domestic and/or industrial wastewater flows safely treated
		Increased proportion of bodies of water with good ambient water quality [6.3.2]	Reported percentage of bodies of water with good ambient water quality
	Improved climate adaptation and mitigation	Increased ability to adapt to climate-related events	Survey of the proportion of people with access to climate-resilient WASH services
		Increased or reduced energy used in providing WASH services	Reported amount of energy used in providing WASH services
		Avoided greenhouse gas emissions associated with WASH provision	Measured or estimated amount of greenhouse gas emissions avoided
Institutional	**Improved financial return on investment**	Reduced employee workplace absenteeism	Reported average number of sick days per employee per year
		Increased or reduced operational costs related to WASH	Reported average annual operational costs related to WASH
		Increased productivity	Reported average number of units per employee per day
			Survey of perceived productivity levels
		Increased quality of work	Reported annual number of rejects/issues
	Improved reputation and license to operate	Increased reputation level	External survey of the average feelings toward the company
			Reported number of negative or positive media stories about the company annually
		Increased brand value	Net promoter score
	Improved employee satisfaction	Increased employee satisfaction with WASH services	Survey of average employee satisfaction with WASH services
		Increased staff retention	Reported annual retention rate
	Improved water governance	Increased integrated water resources management [6.5.1]	Survey of the perceived degree of integrated water resources management
		Increased number of organizations collecting and reporting WASH data	Survey of organizations collecting and reporting WASH data
		Reduced incidence of water conflicts	Reported number of significant water conflicts each year
		Increased institutional capacity	Reported number of active water management groups
	Improved property and land value	Increased property values	Reported average property value in area
	Improved knowledge, awareness and understanding	**Increased level of WASH knowledge, awareness and understanding**	**Knowledge, awareness and understanding (A-11)**
	Improved community resilience	Increased water use efficiency [6.4.1]	Reported average water use efficiency of the primary water provider
		Increased service capacity	Reported maximum capacity of the primary service provider
		Increased volume of water available for WASH	Reported volume of water available for direct human use

Notes: Core indicators and methods are bolded while advanced indicators and methods are not. Core indicators and methods are described in detail in Appendix A while advanced indicators and methods are generally described in Appendix B.

Guidance for Application of the Accounting Framework

DEFINING THE SCOPE OF INTEREST

Before implementing the framework, it is important to define the physical scope or target area of interest. The definition should factor in the desired scale of the activities (e.g., corporate operations, supply chain, community or watershed), objectives of the project and interests of relevant parties (e.g., connection to a funder's manufacturing site).

SELECTING INDICATORS AND METHODS

The indicators and methods provided in this framework cover a wide range of WASH activities and objectives. They are context-specific and practitioners can view the framework as a menu of indicators and methods that can be selected for measurement based on their specific goals, objectives, targets, activities, level of investment and timelines. It is not expected that all or a majority of the indicators and methods will be utilized for any one project. For example, relevant outcomes and impacts will likely be more significant or defined for large-scale projects that are implemented across multiple years, whereas relevant outputs can be quantified for any size project. It is recommended that the selection of indicators and methods occur early in the project, ideally during the design phase and in consultation with implementing partners, to ensure that necessary data are collected. Resources required to monitor the outputs, outcomes and impacts of projects will vary widely and should be considered when selecting indicators and methods to measure and report. With that being said, the framework's indicators could still be utilized to qualitatively understand the benefits associated with a project when it is not feasible to measure results.

COMPARING TO A BASELINE

The indicators are used to show an improvement in conditions as a result of the project activities. In all cases, the methods should be used to calculate and compare results for a baseline, or "without-project", condition to results for a "with-project" condition. The difference is the output, outcome or impact. Parties familiar with the project (e.g., local project implementer) should be consulted when determining the baseline condition.

While the framework can be applied at any stage of a project, it is anticipated that the methods will primarily be applied to completed projects, where data has been collected and can be used for both the without-project and with-project conditions. If the methods are being applied earlier in the process, including when the project is being considered for funding or during implementation, conservative assumptions, design specifications and an understanding of current progress should be utilized and clearly documented.

DISAGGREGATING INDICATORS

Before data are collected and reported, careful thought should be put into whether disaggregation is needed and feasible. For example, if a company has female-specific corporate targets or project objectives, indicators should be disaggregated by gender wherever possible. By recognizing gender in benefit evaluations, companies can explicitly contribute to global and regional strategic commitments to gender equality, including United Nations SDGs. Where feasible and relevant based on program design and objectives, indicators could be disaggregated by gender, age group (e.g., over/under 16 years), location (e.g., workplace, home, community), sector, activity category and type (see Table 1), improvement level (e.g., primary water supply for a household vs. secondary water supply at a community location), and/or technology type.

DATA COLLECTION

Due to the variability in project attributes (e.g., activity, location, funding available, implementing partner, selected indicators/methods, engagement with the community, cultural/social/climate risk considerations), the process for data collection as part of implementation of this framework will vary significantly between projects. Some recommended best practices and considerations are discussed below:

- Before project implementation, it is important to align with all relevant parties (e.g., funders, implementing partners) on who is responsible for data collection throughout the life of the project and how frequently to collect data. The cadence of data collection and tracking should align with reporting to ensure accurate reporting of benefits. For example, if reporting on a project's benefits occurs annually, then some level of tracking should also occur annually before benefits are reported. This should be included in the budget to ensure that the data necessary to calculate the selected indicators is available.
- Consider how best to balance the trade-offs of collecting primary vs. secondary data. Generally, primary data are collected directly through surveys or measurements, whereas secondary data are collected by others (e.g., government publications, censuses) for their own purpose. While primary data may produce results that are more relevant to a specific project, it tends to require additional resources and time that may detract from funding implementation and put unnecessary burdens on implementing partners. The decision of which type of data to use and the scale of the data collection should be made based on the objectives of the relevant parties, funding available and indicators and methods selected for the evaluation. Generally, the use of primary data is recommended as the default for outputs, whereas secondary data is commonly the default for outcomes and impacts. Secondary data from reputable sources should be selected in consultation with the implementing partners. Also, the sources, assumptions and uncertainties associated with input data should be clearly understood and documented.
- When it is not reasonable to collect data for an entire system (e.g., many wells or household water connections across a region), a representative subset of data can be collected and then extrapolated to the entire system. Additionally, while it is preferable to continue to collect data every year that the system is active after implementation, in some instances it may be reasonable to only collect data for a select period of time (e.g., first three years after implementation) and then use the average value in future years. Even in those cases, it should always be confirmed that the systems are still active and functioning as intended.
- When utilizing surveys, the specific questions, size of a representative sample and method of analysis will vary by project. Care should be taken to develop questions that will not bias respondents to a specific answer, provide results that clearly link the activity to the desired indicator and are relatively easy to analyze and compare. Also, it may be helpful to administer surveys both immediately after project activities and in later years to determine whether results stayed the same or changed over time.
- When collecting data, especially through surveys of disadvantaged communities, "Do No Harm" principles should be strictly followed to ensure no negative consequences come to anyone involved with the project. This may include consulting specialists when designing or implementing the data collection, along with ensuring secure and confidential storage of data.

- It should be acknowledged that collection of additional data may present unintended and counterintuitive consequences. For example, additional post-implementation surveys may expose issues (e.g., people without access to basic services) that were not recorded during baseline data collection, resulting in the appearance of deterioration of service even with positive project implementation.

TRACKING AND REPORTING

Tracking and reporting requirements vary by company, and this will drive how a funder tracks and reports on the benefits of their projects. Some recommended best practices and considerations are discussed below:

- Tracking of projects after implementation should focus on confirming that the activities are functioning as intended (primarily by confirming that key implementation and monitoring activities have occurred). Tracking should also confirm that the data necessary to calculate selected indicators and methods has been collected. Long-term tracking and sustainability of activities is key for the realization of outcomes and impacts (beyond outputs).
- The method of attributing project benefits to specific funders should be agreed upon before implementation. It is generally recommended that benefits be attributed based on a company's financial contributions to a project. This cost-share approach divides a company's contribution by the total project cost (which also needs to be agreed upon before implementation), before multiplying that percentage by the quantified benefit. While accurately attributing benefits is important for many companies and is acknowledged to drive investment in WASH, care should be taken to prevent this from hindering collaboration or the scaling of activities and benefits.
- Reporting on outcomes and impacts should use consistent language to acknowledge that outcomes and impacts are likely to be impacted by multiple external factors and thus cannot be solely attributed to the activities of one project. For example, a company might state that their funding "contributed to" a certain outcome.
- The level of rigor by which information is confirmed (e.g., internal review, third-party evaluation, third-party auditing) should align with the anticipated use of the information (e.g., internal communication, external reporting), and be defined before project implementation and during the budgeting process.
- The information communicated during reporting will likely vary by company based on specific targets and objectives. While "typical" indicators such as volumes or people reached are most common, sharing multiple key indicators and project successes tells a richer story of the impact of the projects. If available, data on financial return on investment can also be a helpful tool for communication.
- In addition to external reporting, the results of implementing the framework can be used to measure and communicate success, assess the effectiveness of WASH interventions, drive continuous improvement and inform future WASH-related targets, policies and investments.

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Appendix A: Calculation Methods for Core Indicators

A-1. NUMBER OF SYSTEMS METHOD

Activities & Indicators

The Number of Systems method may be used to estimate the non-volumetric benefit associated with the following activities and indicators:

RELEVANT ACTIVITY CATEGORY	INDICATOR (TYPE)
Water Access	Number of new or restored water access systems (output)
Sanitation Access	Number of new or restored sanitation access systems (output)
Hygiene Access	Number of new or restored hygiene access systems (output)
Sanitation Access; Hygiene Access	Number of new or restored female-friendly sanitation/hygiene systems (output)

This method is relevant to a wide range of WASH activities, specifically those that install or restore/improve/rehabilitate water, sanitation or hygiene systems. Examples of these systems include, but are not limited to, groundwater wells, rainwater harvesting tanks, water treatment facilities, toilets and handwashing stations.

Method Description

This method quantifies the number of new or restored water, sanitation or hygiene systems.

Number of new or restored systems = Number of systems that meet the desired requirements

In order to be considered as part of this method, the system should either be: 1) a new system that is providing adequate access; or 2) a restored/improved/rehabilitated system that is providing adequate access but was previously not providing adequate access. For this method, a system (which may also be referred to as a facility or product) is broadly defined as the infrastructure required to provide water, sanitation or hygiene access. It is not practical to provide a more specific definition, as the context will vary from project to project. Thus, the assumptions and scope of what encompasses a system (e.g., a household that is connected to a piped water supply vs. entire municipal water system) and other desired requirements (e.g., climate resilience, female-friendliness, number of people served, quantity of water, quality of water, reliability, accessibility, maintenance, affordability, relevant national/local standards and guidelines) should be defined when calculating the number of systems.

Drinking water and sanitation systems should meet the World Health Organization and United Nations Children's Fund Joint Management Plan (WHO/UNICEF JMP) definition of "improved" sources/facilities: "Improved drinking water sources are those that have the potential to deliver safe water by nature of their design and construction, and include: piped water, boreholes or tubewells, protected dug wells, protected springs, rainwater, and packaged or delivered water. Improved sanitation facilities are those designed to hygienically separate excreta from human contact, and include: flush/pour flush toilets connected to piped sewer systems, septic tanks or pit latrines; pit latrines with slabs (including ventilated pit latrines), and composting toilets." (WHO & UNICEF, 2023)

Care should be taken to avoid double counting benefits, especially related to new or restored hygiene access systems, as they are commonly part of water or sanitation access activities.

UNICEF et al. (2018) emphasizes that female-friendly sanitation/hygiene systems need to be safe, private, accessible, affordable, well managed, appropriate for menstrual hygiene management, and meet the needs of caregivers.

Inputs & Assumptions

The scope of what is considered a "system" and other requirements will vary by project and purpose. A few examples are provided as Inputs below.

EQUATION	VARIABLE	INPUT
Number of new or restored systems	Water access systems	Number of groundwater wells; Number of households connected; Number of water collection and storage tanks; Number of treatment plants or wetlands
	Sanitation access systems	Number of toilets; Number of bathrooms; Number of septic tanks; Number of treatment plants or wetlands
	Hygiene access systems	Number of sinks; Number of bathrooms; Number of showers; Number of menstrual hygiene products
	Desired requirements	Level of climate resilience; Female-friendliness; Maximum number of people served per system; Minimum quantity of water available per person; Quality of water provided; Reliability of system; Accessibility of system; Adequacy of maintenance; Safety; Relevant national/local standards and guidelines

A-2. NUMBER OF BENEFICIARIES METHOD

Activities & Indicators

The Number of Beneficiaries method may be used to estimate the non-volumetric benefit associated with the following activities and indicators:

RELEVANT ACTIVITY CATEGORY	INDICATOR (TYPE)
Water Access; Sanitation Access; Hygiene Access; Institutional	Number of direct beneficiaries (output)
	Number of people trained or educated in WASH-related areas (output)
	Number of people empowered with new leadership opportunities (output)

This method is relevant to a wide range of WASH activities, including those that involve physical infrastructure or training and education.

Method Description

This method quantifies the number of beneficiaries that directly benefit from the project activities. Beneficiaries are commonly defined as the number of people, households, communities, schools or hospitals.

Number of beneficiaries = Number of beneficiaries that directly received a required level of benefit

The number of beneficiaries, which can be disaggregated many ways (see Disaggregating Indicators section), should be conservatively determined to prevent overcounting individuals that may not in reality benefit from the activities. There are multiple ways to determine the number of beneficiaries, including but not limited to:

- Direct counting of the number of people receiving access from project activities;
- Surveying the number of people reporting improvements in their life as a result of project activities;
- Estimating based on secondary, reported data (e.g., census data for a village that has received a new water source; school attendance records; health care facility patient numbers); or
- Estimating based on a combination of primary and secondary data (e.g., number of household loans and average household size; volume of water provided and average water use per person).

The level of benefit required to be considered as a direct beneficiary will vary based on the activity and purpose. In accordance with the WHO/UNICEF JMP definition of basic service, water should be accessible for beneficiaries within a 30-minute round-trip walk (including queuing), sanitation should be on premises and not shared with other households, and hygiene should be on premises (WHO & UNICEF, 2023). Additionally, if the number of beneficiaries is being used to estimate a volumetric water benefit (e.g., number of people with minimum reasonable access to at least 20 liters of water per person per day; see Appendix A-3, Approach 3) or is related to specific requirements (e.g., basic or safely managed service level), then those requirements should be considered when defining the level of benefit required. See Appendix A-7 for more details regarding the definition of basic and safely managed service.

The number of people trained or educated in WASH-related areas should be determined based on documentation from training events (e.g., sign-in sheet) or something similar. If there is a desire to increase rigor and ensure that all individuals are adequately trained/educated, this indicator could be applied only to those that received training and displayed improved knowledge or skills afterwards (e.g., pre- and post-training survey results, passed a test related to the training).

For the number of people empowered with new leadership opportunities, examples of leadership opportunities include involvement in water user associations or WASH committees. For each project, it is recommended to define empowerment (e.g., trained for opportunities vs. directly given opportunities) and disaggregate by gender (with a target of equal representation by men and women) and duration of the opportunity (e.g., temporary vs. long-term).

Inputs & Assumptions

EQUATION	VARIABLE	INPUT
Number of beneficiaries (direct; trained/ educated; empowered with leadership opportunities)	Beneficiaries	Number of people, households, communities, schools or hospitals
	Level of benefit required	Varies by activity and purpose

A-3. VOLUME PROVIDED METHOD

Activities & Indicators

The Volume Provided method, which originates from Appendix A-3 in Reig et al. (2019; VWBA version 2.0 in progress), may be used to estimate the volumetric benefit associated with the following activities and indicators:

RELEVANT ACTIVITY CATEGORY	INDICATOR (TYPE)
Water Access; Sanitation Access; Hygiene Access	Volume provided (output)

This method is relevant to a wide range of activities due to the fact that water can be provided through a variety of means and for a variety of WASH-related purposes. Activities that have the potential to provide potable water for household and community use include, but are not limited to, those that involve access to a water source (e.g., well construction and rehabilitation, household water connections, piped water systems), water collection and storage (e.g., rainwater harvesting), treatment of surface or groundwater sources (e.g., household filters, drinking water treatment facility), access to sanitation (e.g., toilet access), and access to handwashing, bathing and cleaning facilities (e.g., handwashing stations).

Method Description

Volume provided = Volume of water provided (with-project) - Volume of water provided (without-project)

In general, there are three primary approaches, described in detail below, to quantify the volume of water provided through water, sanitation and/or hygiene access activities. For all three, the water provided should meet the following basic requirements:

1. **Purpose:** The water should be used for a beneficial household or community use (e.g., drinking, cooking, handwashing, bathing, toilet flushing).
2. **Origin:** The water may either be from a new source of water or water that has been made accessible (i.e., improved) through the relevant activities.
3. **Quantity:** The water should come from a sustainable source that is able to provide the needed volume, which varies depending on purpose (e.g., household vs. community), climate, social/cultural norms and individual physiology. While developed for humanitarian contexts, the Sphere Handbook provides potentially helpful and conservative information for the maximum number of people using a water-based facility and volume of water needed for survival (Sphere Association, 2018).

FACILITY	MAXIMUM PEOPLE SERVED (SPHERE ASSOCIATION, 2018)	FLOW RATE (LITERS PER MINUTE) (SPHERE ASSOCIATION, 2018)
Tap	250	7.5
Hand pump	500	17
Open hand well	400	12.5
Bathing facility	50	NA
Community toilet	50	NA
Family toilet	5	NA
School toilet	30 girls or 60 boys	NA

4. **Quality:** The water should be free from contamination and meet relevant local quality standards for the type of use. It should be noted that if water is provided that does not meet drinking water standards, there is a risk that it is used for drinking, even if that is not the intended use. If volume is provided, the resulting wastewater should be properly stored and treated (either on-site or off-site) to ensure no harm is done to people or the environment.
5. **Reliability:** The service should be available when needed throughout the year. If there are expected periods of downtime or lack of use (e.g., summer break for schools, scheduled maintenance), this should be factored into the calculations.
6. **Accessibility:** In accordance with the WHO/UNICEF JMP definition of basic service, water should be accessible for beneficiaries within a 30-minute round-trip walk (including queuing), sanitation should be on-premises and not shared with other households, and hygiene should be on-premises (WHO & UNICEF, 2023).

While measuring the volume provided (Approach 1) is the preferred and most accurate approach for the volume provided indicator, estimating the volume provided utilizing the capacity (Approach 2) or number of beneficiaries (Approach 3) can be employed when it is not feasible to measure/meter the volume of water provided. In situations where either the capacity or beneficiaries approaches are used, it is recommended that both are calculated and the more conservative/lower volume between the two is counted as the volumetric water benefit to prevent overestimating.

Approach 1. Measured Volume Provided

This approach quantifies the volume of water provided using measured/metered flows.

Volume provided = Average annual volume of water provided

Approach 2. Estimated Volume Provided (Capacity)

This approach estimates the volume of water provided using some measure of the system's design capacity. For systems that rely on pipes and pumps (e.g., groundwater wells, piped water systems, connected sanitation or hygiene systems), this may be estimated based on the pumping or delivery design capacity of the system and the average operating time at this capacity. If it is known that the system will be running at less than the design capacity, the average flow rate that is anticipated can be used instead of the design capacity.

Volume provided = Capacity of system * Average operating time at capacity

For systems that capture water (e.g., rainwater harvesting), the volume captured and provided can be estimated based on the minimum of the available supply and the storage potential. The storage potential can be estimated based on the capacity/potential of the system to capture and hold water and the average number of times it fills to capacity each year. The equations below originate from Appendix A-4 in Reig et al. (2019; VWBA version 2.0 in progress); see the report for additional details.

Volume captured and provided = Min [Available supply, Storage potential]

Available supply = Catchment area draining to the system * Runoff coefficient * Average annual rainfall

Storage potential = Design storage capacity * Average annual number of times filled to capacity

Approach 3. Estimated Volume Provided (Beneficiaries)

This approach estimates the volume of water provided using the number of direct beneficiaries receiving reasonable access to water and a conservative estimate of per-capita volume provided, as described below.

Volume provided = Number of direct beneficiaries * Per-capita volume (water provided per beneficiary per day) * Number of days of access per year

Refer to Appendix A-2 (Number of Beneficiaries method) and the requirements described above (purpose, quantity, quality, reliability, accessibility) when determining the number of direct beneficiaries. Because it can be difficult to determine who is using a particular water source, it is recommended that someone familiar with the project determine the number of direct beneficiaries for water supply projects.

The table below provides guidance on the minimum per-capita water volumes required for a variety of WASH-related uses. These volumes, which it should be noted will vary depending on a number of factors (e.g., climate, activity level, socio-economic level, social and cultural norms, gender), can be conservatively used to define the per-capita volume of water provided based on the activity and primary use of the water. For general water access activities (e.g., household water, well access), in accordance with Reig et al. (2019), it is recommended to use the WHO and UNICEF definition of reasonable access (WHO & UNICEF, 2000), which is commonly cited elsewhere as the minimum quantity required for basic needs (Reed & Reed, 2013; WHO, 2022). WHO & UNICEF define reasonable access as the availability of at least 20 liters per person per day from a source within one kilometer of the user's dwelling. For activities that provide water for more specific uses (e.g., handwashing stations, schools, toilets), the per-capita volume should be adjusted based on those uses and the guidance provided below. Practitioners should work with the local implementing partner to arrive at a reasonable per-capita estimate that is reflective of actual water use during the hours of operation.

USE	TYPE	MINIMUM VOLUME FOR SURVIVAL (LITERS PER PERSON PER DAY)	SOURCE
Reasonable/basic access	All	20	WHO & UNICEF, 2000; Reed & Reed, 2013; WHO, 2022
	All	7.5–15	Sphere Association, 2018
Intermediate access	All	50	WHO, 2022
Optimal access	All	100	WHO, 2022
Full realization of the human right to water	All	50–100	UN, 2010
Basic hygiene practices	Hygiene	2–6	Sphere Association, 2018
Basic cooking needs	Hygiene	3–6	Sphere Association, 2018
Handwashing (public)	Hygiene	1–2	Sphere Association, 2018
Schools (drinking and handwashing only)	Access/ Hygiene	3	Sphere Association, 2018
Drinking water	Access	2–5.3	WHO, 2022
Conventional flushing toilets	Sanitation	20–40	Sphere Association, 2018
Pour-flush toilets	Sanitation	3–5	Sphere Association, 2018
Toilet cleaning	Sanitation	2–8 (per toilet)	Sphere Association, 2018
Hospitals and other health centers (outpatient)	All	5	Sphere Association, 2018
Hospitals and other health centers (inpatient)	All	40–60	Sphere Association, 2018

In the case where a local regulation (e.g., national regulation) defines reasonable/basic access to water (or a similar concept) as more than what is described above and the project complies with the local regulation, the volume provided can be calculated based on the number of direct beneficiaries receiving this volume of water. Additionally, in instances where project or activity-specific monitoring data show that beneficiaries are receiving more (or less) than the reasonable/basic access volume, the volume provided can be calculated based on this volume.

Inputs & Assumptions

In all instances, the type of beneficial use of the water provided should be known to confirm that it meets the requirements defined above for volume provided.

EQUATION	VARIABLE	INPUT
Measured volume provided	Measured water volume provided annually	▪ Measured/metered flows for entire system or sample/subset
Estimated volume provided (capacity approach; pipes and pumps)	Capacity of system	▪ Design capacity of system or average flow rate
	Operating time	▪ Average operating time per day ▪ Number of days active per year
Estimated volume provided (capacity approach; water capture)	Available supply	▪ Surface area of catchment draining to the system ▪ Catchment runoff coefficient ▪ Average annual precipitation from a representative weather station
	Storage potential	▪ Design storage capacity ▪ Average annual number of times filled to capacity
Estimated volume provided (beneficiaries approach)	Beneficiaries	▪ Number of direct beneficiaries
	Per-capita volume	▪ Per-capita volume of water (average volume provided per beneficiary per day) ▪ Number of days of access per year

A-4. VOLUME TREATED METHOD

Activities & Indicators

The Volume Treated method, which originates from Appendix A-6 in Reig et al. (2019; VWBA version 2.0 in progress), may be used to estimate the volumetric benefit associated with the following activities and indicators:

RELEVANT ACTIVITY CATEGORY	INDICATOR (TYPE)
Sanitation Access	Volume treated (output)

This method is relevant to sanitation access activities that improve water quality of wastewater (including sewage and fecal sludge), either on-site or off-site from where it was produced, to the point where it can be safely discharged or reused (e.g., construction of or connection to septic, sewage treatment or fecal sludge treatment systems). While wastewater collection and conveyance systems do not directly treat wastewater, they provide a volume treated benefit in instances where it can be shown that the wastewater is delivered to a functioning treatment system that treats the water to relevant water quality targets. Activities that treat surface or groundwater sources for household or community use (e.g., household filters, drinking water treatment facility) should refer to the Volume Provided method (**Appendix A-3**).

Method Description

Similar to the Volume Provided method, there are three primary approaches, described in detail below, to quantify the volume of water treated. The primary requirement for a volume of water to be considered treated relates to the quality. The project activities should improve the quality of the wastewater so that it meets relevant discharge or reuse water quality targets.

Generally, the method involves the following four-step process:

1. Select locally applicable water quality target(s) relevant to the pollutant(s) of concern and tied to the recognized uses of the receiving water (e.g., designated or actual uses). For example, if the treatment plant is being constructed to address fecal coliform bacteria, then the target should be based on effluent standards that are appropriate for the use of the receiving water (e.g., drinking, irrigation, swimming). If locally relevant numeric water quality criteria or quantitative guidelines do not exist, relevant guidelines or standards published by WHO, United States Environmental Protection Agency, European Union or other reputable organization may be applied.
2. Confirm that the influent water does not meet the water quality target(s) (before treatment). Water quality data collected at the inlet may not be needed if it is known that the treatment plant is receiving raw sewage.
3. Confirm that the treated effluent meets the appropriate target(s). Attainment should be demonstrated with monitoring data where possible, or by following design specifications based on similar, well-proven demonstration systems.
4. Measure or estimate the volume of water treated annually.

The approaches below provide additional guidance for measuring or estimating the volume of water treated (Step 4). While measuring the volume treated (Approach 1) is the preferred and most accurate approach for the volume treated indicator, estimating the volume treated utilizing the capacity (Approach 2) or number of beneficiaries (Approach 3) can be done in instances where it is not feasible to measure/meter the volume of water treated. In instances where either the capacity or beneficiaries approaches are used, it is recommended that both are calculated and the more conservative/lower volume between the two is counted as the volumetric water benefit to prevent overestimating.

Approach 1. Measured Volume Treated
This approach quantifies the volume of water treated using measured/metered flows.

> ***Volume treated = Average annual volume of water treated***

Approach 2. Estimated Volume Treated (Capacity)
This approach estimates the volume of water treated using some measure of the system's design capacity. If it is known that the system will be running at less than the design capacity, the average flow rate that is anticipated can be used instead of the design capacity.

> ***Volume treated = Capacity of system * Average operating time at capacity***

Approach 3. Estimated Volume Treated (Beneficiaries)
This approach estimates the volume of water treated using the number of direct beneficiaries.

> ***Volume treated = Number of direct beneficiaries * Per-capita volume (average volume treated per beneficiary per day) * Number of days of treatment access per year***

Refer to Appendix A-2 (Number of Beneficiaries method) when determining the number of direct beneficiaries. For this method, direct beneficiaries are defined as those people that are discharging wastewater to the system to be treated (not downstream beneficiaries). It is expected that these people either were not connected to treatment before the project (and thus discharging wastewater directly to the environment) or their wastewater was inadequately treated. Because it can be difficult to determine who is discharging to a treatment system, it is recommended that someone familiar with the project determine the number of direct beneficiaries for water treatment projects.

While developed for humanitarian contexts, the Sphere Handbook provides potentially helpful and conservative information for the minimum per-capita water volumes required for a variety of hygiene and sanitation-related uses that would produce wastewater (Sphere Association, 2018). These volumes can be conservatively used to define the per-capita volume of water discharged for treatment based on the type of treatment provided. For example, the volume of 22 liters per person per day (minimum hygiene + conventional flushing toilet) can be used in situations where a household is connected to a septic system.

USE	TYPE	MINIMUM VOLUME FOR SURVIVAL (LITERS PER PERSON PER DAY) (SPHERE ASSOCIATION, 2018)
Basic hygiene practices	Hygiene	2–6
Handwashing (public)	Hygiene	1–2
Conventional flushing toilets	Sanitation	20–40
Pour-flush toilets	Sanitation	3–5
Toilet cleaning	Sanitation	2–8 (per toilet)

In instances where local or national regulation defines reasonable/basic access to wastewater treatment (or a similar concept) and the project complies with the regulation, the volume treated can be calculated based on that volume. Additionally, in instances where project-specific monitoring data show that beneficiaries are receiving wastewater treatment of higher or lower volumes of water, the volume treated can be calculated based on this project-specific volume.

Inputs & Assumptions

EQUATION	VARIABLE	INPUT
Measured volume treated	Measured water volume treated annually	▪ Measured/metered flows for entire system or sample/subset
Estimated volume treated (capacity approach)	Pumping/treatment capacity	▪ Maximum capacity of system
	Operating time	▪ Average operating time per day ▪ Number of days active per year
Estimated volume treated (beneficiaries approach)	Beneficiaries	▪ Number of direct beneficiaries
	Per-capita volume	▪ Per-capita volume of water (average volume treated per beneficiary per day) ▪ Number of days of treatment access per year
Water quality (all approaches)	Influent water quality	▪ Relevant influent water quality target(s) ▪ Data demonstrating that the water quality of the influent water does not meet the water quality target(s)
	Effluent water quality	▪ Relevant effluent water quality target(s) ▪ Data demonstrating that the water quality of the effluent water does not meet the water quality target(s) ▪ For off-site treatment, evidence that the effluent is delivered to a functioning treatment system that treats the water to relevant water quality targets

A-5. WITHDRAWAL METHOD

Activities & Indicators

The Withdrawal method, which originates from Appendix A-2 in Reig et al. (2019; VWBA version 2.0 in progress), may be used to estimate the volumetric benefit associated with the following activities and indicators:

RELEVANT ACTIVITY CATEGORY	INDICATOR (TYPE)
Water Access, Sanitation Access, Hygiene Access	Reduced withdrawal (output)

This method is relevant to WASH access activities that improve efficiency and are expected to result in less water to be withdrawn (e.g., leak detection and repair, low-flow faucets, water reuse).

Method Description

This method is used to calculate the long-term average annual reduced volume of water withdrawn for WASH services based on the difference in withdrawal volume for the "with-project" condition (e.g., after implementation of leak repair) compared to the "without-project" condition.

Reduced withdrawal = Withdrawal (without-project) - Withdrawal (with-project)

Depending on the activity, the withdrawal can be calculated as:

1. Volume of water withdrawn from the source (i.e., surface or groundwater) based on the duration of the diversion and the diversion flow rate over that time;
2. Volume of non-revenue water (NRW) loss; or
3. Volume reused.

If metered/measured data are not available, the withdrawal volumes can be estimated. It should be noted that reducing the number of people receiving service is not an appropriate reason for reduced withdrawal. Rather, this method requires that the same (or greater) level of service is provided while also improving efficiency.

Inputs & Assumptions

EQUATION	VARIABLE	INPUT
Withdrawal volume	Withdrawal	▪ Volume of measured/metered or estimated diversions ▪ Volume of NRW losses ▪ Volume reused

A-6. CAPITAL INVESTED OR MOBILIZED METHOD

Activities & Indicators

The Capital Invested or Mobilized method may be used to estimate the non-volumetric benefit associated with the following activities and indicators:

RELEVANT ACTIVITY CATEGORY	INDICATOR (TYPE)
Water Access; Sanitation Access; Hygiene Access; Institutional	Amount of capital invested or mobilized for WASH (output)

This method is relevant to a wide range of WASH activities that require capital investment.

Method Description

This method quantifies the amount of capital invested or mobilized for WASH activities.

> ***Amount of capital invested or mobilized for WASH = Capital invested or mobilized according to the desired requirements***

The amount of capital, which can be disaggregated many ways (see Considerations in Applying the Methods section), should be conservatively determined to prevent overcounting. Capital may encompass money or other assets, such as materials and labor; however, it is not practical to provide a specific definition for this indicator, as the context will vary from project to project. Thus, the assumptions and scope of what encompasses capital invested or mobilized and any desired requirements (e.g., loan vs. donation) should be defined when calculating this indicator. For example, the capital invested could relate to a specific funder or portion of the project; it could also relate to direct contributions only or involve in-kind contributions or additional capital that was mobilized/catalyzed as a result of project activities.

Inputs & Assumptions

EQUATION	VARIABLE	INPUT
Amount of capital invested or mobilized for WASH	Capital invested or mobilized	Amount of dollars or assets
	Desired requirements and assumptions	Varies by project

A-7. SERVICE LEVEL METHOD

Activities & Indicators

The Service Level method may be used to estimate the non-volumetric benefit associated with the following activities and indicators:

RELEVANT ACTIVITY CATEGORY	INDICATOR (TYPE)
Water Access; Sanitation Access; Hygiene Access	Increased proportion of people with access to basic services (drinking water, sanitation, or hygiene) (outcome)
Water Access; Sanitation Access	Increased proportion of people with access to safely managed services (drinking water or sanitation) (outcome)

This method is relevant to a wide range of activities that improve the level of WASH service. Activities include, but are not limited to, those that involve access to a water source (e.g., well construction and rehabilitation, household water connections, piped water systems), water collection and storage (e.g., rainwater harvesting), treatment of surface or groundwater sources (e.g., household filters, drinking water treatment facility), access to sanitation (e.g., toilet access, connection to a sewage treatment plant), and access to hygiene (e.g., household handwashing infrastructure).

Method Description

The WHO/UNICEF JMP is the custodian for the SDG targets related to WASH access (6.1 and 6.2), with key indicators that focus on the proportion of the population with safely managed services. Due to the role of the JMP and the importance of the SDG targets and indicators, the number of people with desired levels of service as defined by the JMP is an important and standardized indicator that should be monitored and reported on.

To determine the increased proportion of people with access to basic or safely managed service, the level of service for the entire target population (e.g., community, city or country impacted by the project activities) should be assessed before (without-project) and after (with-project) project implementation. Due to the level of data collection required, it is reasonable to either assess a representative subset of the target population or use published data from the JMP or other reputable sources. The outcome is based on the difference between the without-project and with-project proportion of people.

> ***Increased proportion of people with access to basic drinking water, sanitation or hygiene services = Proportion of people (with-project) - Proportion of people (without-project)***
>
> ***Increased proportion of people with access to safely managed drinking water or sanitation services = Proportion of people (with-project) - Proportion of people (without-project)***

The Service Level method relies heavily upon guidance developed by the JMP and UN (UN, 2023b; WHO & UNICEF, 2023). The table below outlines the requirements for basic and safely managed service as defined by the JMP. Refer to the JMP website for additional details on these service levels, descriptions of lower levels of service (e.g., limited, unimproved), reports and monitoring data. Additionally, the Water Action Hub pulls drinking water, sanitation, hygiene and menstrual health data from the JMP database and conveniently displays it by country. The table below offers a description of basic and safely managed services, as defined by JMP (WHO & UNICEF, 2023).

TYPE	DEFINITION	SAFELY MANAGED SERVICE	BASIC SERVICE
Drinking water	The accessibility, availability and quality of the main source used by households for drinking, cooking, personal hygiene and other domestic uses	Drinking water from an improved water source that is accessible on premises, available when needed and free from fecal and priority chemical contamination	Drinking water from an improved source, provided collection time is not more than 30 minutes for a round-trip including queuing
Sanitation	The management of excreta from the facilities used by individuals, through emptying and transport of excreta for treatment and eventual discharge or reuse	Use of improved facilities that are not shared with other households and where excreta are safely disposed of in situ or removed and treated off-site	Use of improved facilities which are not shared with other households
Hygiene	The conditions and practices that help maintain health and prevent spread of disease, including handwashing, food hygiene and menstrual hygiene management.	Not defined	Availability of a handwashing facility with soap and water at home

The table below provides additional guidance related to the requirements for safely managed and basic service (UN, 2023b; WHO & UNICEF, 2023).

TERM	DEFINITION
Improved drinking water sources	Water sources that have the potential to deliver safe water by nature of their design and construction, and include: piped water, boreholes or tubewells, protected dug wells, protected springs, rainwater, and packaged or delivered water.
Accessible on premises	If the point of collection is within the dwelling, compound, yard or plot, or water is delivered to the household.
Available when needed	If households report having 'sufficient' water, or water is available 'most of the time' (i.e. at least 12 hours per day or four days per week).
Free from fecal and priority chemical contamination	Requires that drinking water meets international standards for microbiological and chemical water quality specified in the WHO Guidelines for Drinking Water Quality. For the purposes of global monitoring, the priority indicator of microbiological contamination is E. coli (or thermotolerant coliforms), and the priority chemical contaminants are arsenic and fluoride.
Improved sanitation facilities	Sanitation facilities designed to hygienically separate excreta from human contact, including: flush/ pour flush toilets connected to piped sewer systems, septic tanks or pit latrines; pit latrines with slabs (including ventilated pit latrines), and composting toilets.
Safely managed wastewater treatment	Wastewater and fecal sludge receiving secondary or higher levels of treatment are considered 'safely managed.' Primary treatment is not considered safely managed, unless the effluent is discharged in a way that precludes further human contact (e.g. through a long ocean outfall).
Handwashing facilities	May be fixed or mobile and include a sink with tap water, buckets with taps, tippy-taps, and jugs or basins designated for handwashing.
Soap	Includes bar soap, liquid soap, powder detergent and soapy water but does not include ash, soil, sand or other handwashing agents.

Inputs & Assumptions

EQUATION	VARIABLE	INPUT
Increased proportion of people with access	Level of service required	▪ Desired type of service (drinking water, sanitation or hygiene) ▪ Information regarding safely managed and basic service requirements
	Proportion of people	▪ Proportion of people with basic service within target population (without-project vs. with-project) ▪ Proportion of people with safely managed service within target population (without-project vs. with-project)

A-8. TIME SAVINGS METHOD

Activities & Indicators

The Time Savings method may be used to estimate the non-volumetric benefit associated with the following activities and indicators:

RELEVANT ACTIVITY CATEGORY	INDICATOR (TYPE)
Water Access	Reduced time spent on water access activities (outcome)

This method is relevant to a wide range of water access activities that reduce the time spent to access water for a beneficial use (e.g., drinking, cooking, handwashing, bathing, toilet flushing). Activities include, but are not limited to, those that involve access to a water source (e.g., well construction and rehabilitation, household water connections, piped water systems) and water collection and storage (e.g., rainwater harvesting).

Method Description

Time savings that accompany WASH service improvements have the potential to catalyze additional benefits, including the ability to attend school or work. This method quantifies the average change in time spent daily to access usable water as a result of the project activities.

> ***Reduced time spent on water access activities = Average time spent to access usable water per person per day (without-project) - Average time spent to access usable water per person per day (with-project)***

To apply this method, it is important to define the population that benefited from the project activities (see Appendix A-2, Number of Beneficiaries method) and the activities that are required to consider the water usable, which will vary based on the quality of the water and the eventual beneficial use. In some instances, the time spent will only include the time to access or collect the water. In other instances, additional treatment (e.g., boiling) will be required before the water is used, which should be included in the time spent. The time spent should focus on the household or individual level and thus should not take into account treatment time at the community or utility level.

While it is preferred to utilize surveys or direct monitoring of individuals to determine the average time spent per person per day, secondary data from reputable sources can be utilized, if necessary. For example, Table 6 in Hutton (2015) provides estimates for time savings resulting from closer physical access and less waiting time for water sources.

Inputs & Assumptions

EQUATION	VARIABLE	INPUT
Reduced time spent on water access activities	Considerations	▪ Beneficiaries impacted by water access improvements ▪ Activities required to result in usable water (based on the quality of the water and the eventual beneficial use)
	Time spent	Monitored, surveyed or estimated average time spent per person per day (without-project vs. with-project)

A-9. INCIDENCE OF COMMUNICABLE DISEASES METHOD

Activities & Indicators

The Incidence of Communicable Diseases method may be used to estimate the non-volumetric benefit associated with the following activities and indicators:

RELEVANT ACTIVITY CATEGORY	INDICATOR (TYPE)
Water Access; Sanitation Access; Hygiene Access	Reduced incidence of waterborne diseases (outcome)
Water Access; Sanitation Access; Hygiene Access	Reduced incidence of vector-borne diseases (outcome)

This method is relevant to a wide range of WASH access activities that protect health and well-being (e.g., water treatment, access to sanitation, handwashing and bathing facilities, sanitation and hygiene training and education).

Method Description

This method relies on reported data to quantify the reduction in communicable diseases as a result of the project activities. While there has been work in recent years to estimate the proportion of diarrheal disease burden attributable to WASH, there is strong consensus that the majority of diarrheal disease is due to poor WASH (Mills & Cumming, 2016). Thus, this method focuses on reported cases of diseases (waterborne and vector-borne) without adding the complexity of trying to attribute diseases to WASH or not.

> ***Reduced incidence of waterborne diseases = Reported number of cases of waterborne diseases annually (without-project) - Reported number of cases of waterborne diseases annually (with-project)***
>
> ***Reduced incidence of vector-borne diseases = Reported number of cases of vector-borne diseases annually (without-project) - Reported number of cases of vector-borne diseases annually (with-project)***

Appendix 5 in The Sphere Handbook (Sphere Association, 2018) provides a list of water-related infections. While waterborne diseases (specifically diarrheal diseases) are most commonly associated with WASH issues, there may be cases when vector-borne diseases are also relevant (e.g., malaria).

While local data specific to the target population impacted by the WASH activities (e.g., from a local health center) are preferable for this indicator, the availability and quality of annual incidence of disease data for a target population likely varies by country and region. If necessary, global, regional and country level data from WHO on the WASH-related disease burden can be used (WHO, 2019; Wolf et al., 2023). These estimates are collected as part of monitoring for SDG indicator 3.9.2 and cover diarrhea, acute respiratory infections, undernutrition, and soil-transmitted helminthiases. Key data (disease rates, deaths and disability-adjusted life years) can be accessed through The Global Health Observatory (WHO, 2023a). Additionally, the WASH-related disease burden estimation tool (WHO, 2023b) is an Excel-based tool that can be used to construct scenarios and compare health impacts from different WASH exposures by country. Finally, the USAID WASH Needs Index Data Visualization (USAID, 2022) can be used to access country-specific data on child mortality due to diarrhea.

Inputs & Assumptions

EQUATION	VARIABLE	INPUT
Reduced incidence of waterborne or vector-borne diseases	Reported number of cases	▪ Target population and area of focus ▪ Reported number of cases per year (without-project vs. with-project)

A-10. MANAGEMENT AND LEADERSHIP METHOD

Activities & Indicators

The Management and Leadership method may be used to estimate the non-volumetric benefit associated with the following activities and indicators:

RELEVANT ACTIVITY CATEGORY	INDICATOR (TYPE)
Water Access; Sanitation Access; Hygiene Access; Institutional	Increased proportion of positions in WASH management and leadership held by women (outcome)

This method is relevant to a wide range of activities that improve the level of engagement and representation of women in WASH management and leadership.

Method Description

This method relies on the reported or surveyed proportion of positions in WASH management or leadership held by women.

> ***Increased proportion of positions in WASH management or leadership held by women = Proportion of positions held by women (with-project) - Proportion of positions held by women (without-project)***

The relevant WASH management and leadership position (e.g., water users associations, WASH committees) and the target population or area of focus should be defined first. There are multiple ways to then conservatively determine the number of women holding relevant positions, including, but not limited to, surveying beneficiaries of project activities (without-project vs. with-project) or utilizing reported data from local or regional sources. Finally, it is recommended to disaggregate reporting by the duration of the position (e.g., temporary vs. long-term) and to always take into consideration social norms to ensure engagement of women is done effectively and without harm.

Inputs & Assumptions

EQUATION	VARIABLE	INPUT
Increased proportion of positions in WASH management or leadership held by women	Proportion of positions held by women	▪ Target population and area of focus ▪ Total number of WASH management and leadership positions ▪ Reported or surveyed number of women with positions in WASH management or leadership (without-project vs. with-project)

A-11. KNOWLEDGE, AWARENESS AND UNDERSTANDING METHOD

Activities & Indicators

The Knowledge, Awareness and Understanding method may be used to estimate the non-volumetric benefit associated with the following activities and indicators:

RELEVANT ACTIVITY CATEGORY	INDICATOR (TYPE)
Water Access; Sanitation Access; Hygiene Access; Institutional	Increased level of WASH knowledge, awareness and understanding (outcome)

This method is relevant to a wide range of activities that improve WASH knowledge, awareness and understanding (e.g., training and education).

Method Description

This method relies on the average surveyed level of WASH knowledge, awareness and understanding.

> ***Increased level of WASH knowledge, awareness and understanding = Average score of respondents (with-project) - Average score of respondents (without-project)***

The target population should be defined based on the scale of the implemented activities. The specific questions used to survey the average level of WASH knowledge, awareness and understanding will vary by project and region, but should be consistent across without-project (pre-project) and with-project (post-project) surveys. It may be helpful to administer the survey both immediately after project activities and in later years to determine whether knowledge remained, was lost, or increased over time. Finally, the questions can be designed specifically for the type of activity implemented (e.g., handwashing) or WASH services in general.

To provide a few examples, questions to understand the level of WASH knowledge, awareness and understanding could include the following:

- What topics were covered in the training you attended? (to confirm attendance and general awareness of topics)
- Which of the following is not an improved water source? (followed by options)
- Which of the following is not a handwashing best practice? (followed by options)
- Is washing your hands with water alone enough to prevent diseases?
- Can defecating near a water source cause contamination and diseases?

Inputs & Assumptions

EQUATION	VARIABLE	INPUT
Average level of WASH knowledge, awareness and understanding	Average score of respondents	▪ Target population and area of focus ▪ Average survey score (without-project vs. with-project)

Appendix B: Calculation Methods for Advanced Indicators

The tables that follow describe indicators and calculation methods for advanced indicators.

B-1. OUTPUT INDICATORS

INDICATOR	RELEVANT ACTIVITY CATEGORIES	CALCULATION METHOD	ADDITIONAL GUIDANCE
Number of indirect beneficiaries	Water Access; Sanitation Access; Hygiene Access; Institutional	Number of indirect beneficiaries	It is recommended that the number of people, households, communities, schools or hospitals that indirectly benefited from the project activities are determined through surveys or direct measurement. At this time, it is not feasible or necessary to develop a standard definition of what it means to "indirectly" benefit from an activity. Thus, each project should decide how to define this on their own and adequately describe assumptions when calculating this indicator. Examples of indirect beneficiaries are the families of school children who now have WASH in their schools, and the beneficiaries of actions taken by authorities when the authorities are the direct beneficiaries of training.
Number of WASH-related jobs created	Water Access; Sanitation Access; Hygiene Access; Institutional	Number of WASH-related jobs created	Many WASH activities have the potential to create jobs and support local WASH enterprises. As examples, jobs may involve construction, operation or repair of infrastructure, or training and education. It is recommended to measure the jobs created directly due to the project activities. Caution should be taken to avoid counting jobs created due to outside causes independent of project activities. The number of jobs created could include short-term (e.g., people employed for short-term projects) or long-term (e.g., ongoing maintenance with some level of job security) employment. Each project should decide on the length of time an individual must remain employed for the position to be considered a job.
Reduced or avoided pollutant or nutrient load	Sanitation Access	Direct monitoring or modeling of reduced or avoided pollutant or nutrient load	After identifying key parameters of concern, the change in pollutant or nutrient load can be determined by collecting water quantity and quality data from inlets to and outlets from the implemented infrastructure during without-project and with-project conditions. If it is not feasible to conduct direct monitoring, the reduction can be estimated by utilizing results from similar activities implemented elsewhere (e.g., pilots, best practices) or pre-existing models. It should be noted that WASH activities have the potential for unintended negative consequences. For example, toilet installation in a community could increase diffuse wastewater discharge if the water is not properly treated.

INDICATOR	RELEVANT ACTIVITY CATEGORIES	CALCULATION METHOD	ADDITIONAL GUIDANCE
Amount or volume of beneficial resources created	Sanitation Access	Amount or volume of beneficial resources created	Some activities, like wastewater and sewage treatment, have the potential to produce beneficial resources, like compost, as a by-product. This indicator is meant to focus on by-products and should not calculate the water that is treated, which would fall within the volume provided or volume treated indicators. Care should be taken to ensure that the produced resources are fit for the desired use and do not have any unintended negative consequences.
Amount of money saved	Water Access; Sanitation Access; Hygiene Access	Dollars saved	WASH activities have the potential to save money for households, communities or companies through multiple avenues, including, but not limited to, reduced health costs or worker absenteeism. Savings should directly result from project activities. It is recommended to explain the cause of these savings and who directly benefited (e.g., access to new groundwater source saves families on average $X per year as compared to purchasing bottled water).
Number of entrepreneurs or businesses supported	Water Access; Sanitation Access; Hygiene Access; Institutional	Number of entrepreneurs or businesses trained or supported	WASH activities have the potential to support businesses or entrepreneurs through WASH training or job creation. For each project, it is recommended to define the level of support and disaggregate by gender (with a target of equal representation by men and women).
Number of strategies or plans developed and/or implemented	Water Access; Sanitation Access; Hygiene Access; Institutional	Number of strategies or plans developed and/or implemented	Strategies or plans are fairly general terms that can apply to a wide scope of reports and activities. For example, these can include international, national, regional or local strategies or plans developed or implemented by government agencies, utilities, NGOs or companies.

B-2. OUTCOME INDICATORS

INDICATOR	RELEVANT ACTIVITY CATEGORIES	CALCULATION METHOD(S)	ADDITIONAL GUIDANCE
Reduced distance traveled to access WASH services	Water Access; Sanitation Access; Hygiene Access	Survey of the average distance traveled daily to access WASH services Survey of the percentage of the population within a 30-minute round-trip walk from the nearest water source (including queuing)	The need to travel to access WASH services can put individuals, specifically women and children, at risk of harassment and assault, prevent individuals from attending school or work, and result in increased incidence of disease. When calculating this indicator, it should first be determined who is considered a beneficiary of the project activities and whether this indicator is considering WASH services in general or focusing on specific services (e.g., drinking water). There are multiple approaches to conservatively determine the distance traveled per person per day, including, but not limited to, surveying beneficiaries of project activities or estimating the change in distance based on map data. The 30-minute round-trip walk guidance, which includes queuing, originates from the WHO/UNICEF JMP's definition of basic drinking water service (WHO & UNICEF, 2023).
Reduced incidence of open defecation	Sanitation Access	Survey of the percentage of the population (or number of people) practicing open defecation Reported number of communities verified as open defecation free (ODF) and the total number of people in those communities from census results	Open defecation refers to the practice of defecating in fields, forests, bushes, bodies of water or other open spaces (WHO & UNICEF, 2023). This practice poses a significant risk to community health and its elimination is expected to improve health, nutrition and productivity for individuals in developing countries. The WHO/UNICEF JMP website reports on country, regional and global sanitation data, including the percentage of the population practicing open defecation (WHO & UNICEF, 2023). ODF status indicates that all households in a community have access to sanitation products and services.
Increased proportion of people practicing good hygiene behavior at critical times	Hygiene Access	Survey of the percentage of the population practicing proper handwashing at critical times	Critical times for handwashing include, but are not limited to, before cooking and eating, after using sanitation facilities, and when in contact with a sick person. While surveys of individuals, for example after taking a hygiene training class, may help understand whether individuals feel that they practice proper handwashing, the results may be biased. It is instead recommended to observe a sample of the population to determine whether they are in fact practicing proper handwashing at critical times.
Reduced healthcare spending	Water Access; Sanitation Access; Hygiene Access; Institutional	Reported average amount of annual healthcare spending per household Survey of the average annual healthcare costs per household	Improved WASH services are expected to improve individual and community health and thus require fewer and less severe medical treatments and expenses. For consistency, it is recommended that this indicator be calculated at the household level.
Reduced prevalence and severity of water insecurity	Water Access; Hygiene Access	Application of the Water Insecurity Experiences (WISE) Scales survey methodology	The WISE Scales can be used to measure the prevalence of water insecurity for individuals or households across the globe. The quick surveys ask about the frequency of experiences with 12 common water-related disturbances to emotional well-being or disruptions in daily activities. Additional information on how to use and interpret the scales can be found at https://www.ipr.northwestern.edu/wise-scales/index.html (Northwestern University, 2023).

INDICATOR	RELEVANT ACTIVITY CATEGORIES	CALCULATION METHOD(S)	ADDITIONAL GUIDANCE
Increased mental well-being	Water Access; Sanitation Access; Hygiene Access	Survey of the average perceived level of mental well-being, considering stress, anxiety, shame and embarrassment	WHO defines mental health as a state of well-being in which the individual realizes their abilities, can cope with normal stresses of life, can work productively, and is able to make a contribution to society (WHO, Victorian Health Promotion Foundation and the University of Melbourne, 2005). The specific focus and questions of the survey should be tailored to the project activities and objectives related to improving mental well-being. Questions related to the individual's perceived level of stress, anxiety, shame and embarrassment are a good place to start, but other topics may also be relevant.
Increased safety while accessing WASH services	Water Access; Sanitation Access; Hygiene Access; Institutional	Survey of the average perceived level of safety while accessing WASH services Reported number of harassment and assault incidents annually while performing WASH activities Survey of the number of harassment or assault incidents experienced annually while performing WASH activities	Improved WASH services (e.g., drinking water accessible on premises, sanitation facilities not shared with other households) have the potential to improve the safety of individuals, especially women and children, by reducing the distance and time traveled for WASH services and the need to access community resources. In addition to risk from other people, it also has the potential to reduce risk from animals (e.g., snakes) or unsafe or poorly maintained WASH infrastructure. While there is value in identifying the reported number of harassment and assault incidents annually, these cases may be unrelated to WASH activities and many cases of assault are not always reported or documented for multiple reasons. Thus, it will likely make sense to also anonymously survey individuals in addition to focusing on the reported number of incidents. The survey questions should be tailored to the project activities and attempt to differentiate safety in general from safety related to accessing WASH services.
Increased sense of dignity related to WASH services	Water Access; Sanitation Access; Hygiene Access	Survey of the average perceived sense of dignity related to WASH services	An inability to access improved WASH services has the potential to result in a loss of dignity, for example, if an individual is forced to practice open defecation or does not have the necessary menstrual hygiene products. The survey questions should be tailored to the project activities and attempt to differentiate dignity in general from dignity related to WASH services.
Improved affordability of WASH services	Water Access; Sanitation Access; Hygiene Access; Institutional	Survey of the average percentage of household annual income expended on WASH services	UNICEF & WHO (2021) provides detailed recommendations for measuring affordability, with this indicator based on the expenditure threshold approach. With this method, there are considerations that need to be decided on, including the services (e.g., drinking water, sanitation, hygiene) and costs (e.g., recurrent, capital, non-financial) to account for. To prevent overcomplication, it is recommended that this indicator omit healthcare costs. When collecting survey data, questions should be phrased in a way to avoid overlap and double counting of costs. If necessary, the household's total annual expenditure can replace household annual income as the denominator. In addition to the survey method included here, there is potential to assess community or regional income and spending data to assess affordability. According to the Sphere Association (2018), a target of 5% or less of household income should be used to buy water for drinking and domestic hygiene.
Increased income	Water Access; Sanitation Access; Hygiene Access	Reported average household income Survey of average time spent daily on income-generating activities	Economic gains can be expected when improved WASH services allow individuals to spend more time at school or participating in income-generating activities (e.g., work). While it is preferable to directly connect economic gains to WASH activities, this may not always be possible. This indicator relates to SDG indicators 1.1.1 and 1.2.1, which measure the proportion of the population living below the international or national poverty line as monitored by the World Bank (UN, 2023a). As of September 2022, the World Bank set the international poverty line as $2.15 per person per day (World Bank, 2022).

INDICATOR	RELEVANT ACTIVITY CATEGORIES	CALCULATION METHOD(S)	ADDITIONAL GUIDANCE
Increased quality of life	Water Access; Sanitation Access; Hygiene Access; Institutional	Survey of the average perceived quality of life	How quality of life is defined and surveyed will vary based on country and culture. Each project should define the local indicators of quality of life, specifically related to WASH services, and ask questions related to these indicators to determine perceived quality of life.
Increased social return on investment (SROI)	Water Access; Sanitation Access; Hygiene Access; Institutional	Calculation of SROI	Multiple resources are available to calculate SROI, including the methodology initially created by the Roberts Enterprise Development Fund (Emerson et al., 2000), which attempts to monetize the economic value of social impacts.
Increased school attendance	Water Access; Sanitation Access; Hygiene Access	Reported average number of missed days per student per school year Reported number of children in the community not attending formal school	Improved WASH services allow children the ability to spend more time in school (e.g., fewer sick days, reduced responsibility for water collection), and improved services in schools create a comfortable environment for students to attend. Information from local schools and educational partners should be used to assess this indicator.
Increased role in household decision-making related to WASH for women	Water Access; Sanitation Access; Hygiene Access;	Survey of the average woman's perceived role in household decision-making related to WASH	Relevant roles could include, but are not limited to, greater management of finances or decisions on WASH services. The Water, Sanitation, and Hygiene Gender Equality Measure (WASH-GEM) (UTS, 2019) tool can be used to explore the connection between gender equality and WASH using a number of indexes and scales related to resources, agency, critical consciousness, structures and well-being. Relevant questions from WASH-GEM that can be used include "How often do your family members listen to your opinions when making decisions about household water, sanitation and hygiene?" or "How often do you have the final say on big decisions?"
Increased access to sanitation facilities when needed by women and girls	Sanitation Access; Hygiene Access	Survey of the percentage of women and girls that have had adequate access to sanitation facilities and products over the past year, when needed	How "adequate access" is defined will vary by community/country and culture, so the survey should either define this for respondents or generally ask whether they feel that they have adequate access. According to UNICEF et al. (2018), at a minimum, female-friendly sanitation/hygiene systems need to be safe, private, accessible, affordable, well managed, cater for menstrual hygiene management, and meet the needs of caregivers.
Increased proportion of domestic and/or industrial wastewater flows safely treated	Sanitation Access	Reported percentage of domestic and/or industrial wastewater flows safely treated	Different types of wastewater have various degrees of contamination and threats to public health. According to SDG indicator 6.3.1, wastewater is classified as safely treated depending on the wastewater treatment plant's compliance rate to the effluent standards (UN, 2023a and 2023b). While it is often not practical to identify effluent standards for the project region and then perform calculations of the percentage of safely treated wastewater flow for the whole area (as compared to total wastewater flows), it is recommended to locate data collected as part of SDG indicator 6.3.1 or from local utilities or government groups.
Increased proportion of bodies of water with good ambient water quality	Sanitation Access	Reported percentage of bodies of water with good ambient water quality	Ambient water quality refers to the quality of natural, untreated water in rivers, lakes, and groundwaters. This indicator relies on water quality data and the analysis of samples collected from water bodies. In line with SDG indicator 6.2.1, this indicator should be assessed as the number of water bodies classified as having good quality (i.e. with at least 80% complying with their respective target values) to the total number of assessed water bodies (UN, 2023a and 2023b).

INDICATOR	RELEVANT ACTIVITY CATEGORIES	CALCULATION METHOD(S)	ADDITIONAL GUIDANCE
Increased ability to adapt to climate-related events	Water Access; Sanitation Access; Hygiene Access; Institutional	Survey of the proportion of people with access to climate-resilient WASH services	Generally, people have access to climate-resilient WASH when WASH services are available to them at all times, including during extreme weather events. The Climate-Resilient WASH section provides a more detailed definition of climate-resilient WASH, which can be evaluated for WASH in general or by service (drinking water, sanitation, or hygiene). While direct surveys of the target population may be the most straightforward method to collect data for this indicator, larger scale data may be available from emergency response organizations or national disaster loss databases managed by special agencies.
Increased or reduced energy used in providing WASH services	Water Access; Sanitation Access; Hygiene Access	Reported amount of energy used in providing WASH services	The specific services assessed (e.g., drinking water, sanitation) may vary based on project objectives and activities. It is recommended to work with local utilities to understand the energy use per person (i.e., kilowatt-hour per person per year). It should be noted that energy use may actually increase with improved WASH services (e.g., increased water treatment in utilities will increase energy use). On the other hand, household energy use could decrease (e.g., reduced energy needed to boil drinking water). It may be helpful to disaggregate this indicator by renewable and non-renewable energy sources.
Avoided greenhouse gas emissions associated with WASH provision	Water Access; Sanitation Access; Hygiene Access	Measured or estimated amount of greenhouse gas emissions avoided	While improved WASH services have the potential to increase or decrease greenhouse gas emissions, it is generally expected that project activities will account for emissions and attempt to mitigate unnecessary emissions. For example, greenhouse gas emissions could be avoided from a reduced need to boil drinking water or have daily deliveries of water trucks. Models are available for determining the reduction of greenhouse gas emissions, including the Bureau of Ocean Energy Management's Greenhouse Gas Life Cycle Energy Emissions Model (BOEM, 2023).
Reduced employee workplace absenteeism	Water Access; Sanitation Access; Hygiene Access	Reported average number of sick days per employee per year	Absence calculations should attempt to measure employee time off from work due to illness, stress, harassment, menstruation, family demands or other reasons associated with WASH. Employee workplace absences should not include the number of days employees were absent due to vacation. It is recommended to calculate associated financial gains from reduced employee absenteeism. Appendix 4 of WaterAid (2018) provides examples and guidance on how to calculate the financial value of reduced absence.
Increased or reduced operational costs related to WASH	Water Access; Sanitation Access; Hygiene Access; Institutional	Reported average annual operational costs related to WASH	Operational costs for businesses related to WASH may include water treatment, bottled water, energy use, bathroom maintenance and menstrual products. It should be noted that either increased or reduced costs could be a positive or negative result, depending on the context.
Increased productivity	Water Access; Sanitation Access; Hygiene Access; Institutional	Reported average number of units per employee per day Survey of perceived productivity levels	Reduced incidence of disease, employee workplace absenteeism, and time spent accessing WASH services all have the potential to result in improved business productivity. In addition to units produced (industry dependent) and perceived productivity, financial gains from improved productivity can also be estimated. Appendix 4 of WaterAid (2018) provides examples and guidance on how to calculate the financial value of increased productivity. According to Hutton (2015), for adults too sick to work, their time can be valued at 30% of the average GDP per capita converted to an hourly rate.

INDICATOR	RELEVANT ACTIVITY CATEGORIES	CALCULATION METHOD(S)	ADDITIONAL GUIDANCE
Increased quality of work	Water Access; Sanitation Access; Hygiene Access; Institutional	Reported annual number of rejects/ issues	Improved WASH services have the potential to improve physical and mental health, reduce incidence of disease, reduce the time spent to access water, and increase time available for sleep and other activities. These benefits could positively contribute to concentration in the workplace and result in improved quality of work. Appendix 4 of WaterAid (2018) provides examples and guidance on how to calculate the financial value of improved quality.
Increased reputation level	Water Access; Sanitation Access; Hygiene Access; Institutional	External survey of the average feelings toward the company Reported number of negative or positive media stories about the company annually	Lack of WASH services, whether internally to workers or in the surrounding community, has the potential to harm the reputation of a company. Analyzing media stories is a passive method to assess this indicator, but can be deceiving. It is recommended to directly survey a representative range of people in the community to understand the company's reputation.
Increased brand value	Institutional	Net promoter score	Lack of WASH services, whether internally to workers or in the surrounding community, has the potential to harm the value of a brand. A net promoter score is the percentage of customers who are promoters of the brand minus the percentage who are detractors from the brand. This score measures customer experience and predicts business growth (NICE, 2021).
Increased employee satisfaction with WASH services	Water Access; Sanitation Access; Hygiene Access; Institutional	Survey of average employee satisfaction with WASH services	Employee satisfaction should be expected to increase with improved access to sanitation and hygiene services in the workplace. It is recommended to survey employees of the company to determine the level of satisfaction they feel toward the WASH services they receive rather than their job in general.
Increased staff retention	Water Access; Sanitation Access; Hygiene Access; Institutional	Reported annual retention rate	While staff retention is impacted by many factors, WASH services at the workplace or the household have the potential to impact retention. Employees may leave a company voluntarily if services are not adequate or be forced to leave due to increased time needed to access services for their family or sickness from waterborne diseases. Appendix 4 of WaterAid (2018) provides examples and guidance on how to calculate the financial value of reduced staff turnover.
Increased integrated water resources management	Water Access; Sanitation Access; Hygiene Access; Institutional	Survey of the perceived degree of integrated water resources management (IWRM)	According to SDG indicator 6.5.1, integrated water resources management is defined as a process of managing natural resources in order to maximize economic and social welfare (UN, 2023a and 2023b). The concept of IWRM can be surveyed in four sections: enabling environment (policies, laws and regulations), institutions and participation (institutions supporting IWRM), management instruments (tools and activities enabling decision makers to make choices), and financing.
Increased number of organizations collecting and reporting WASH data	Water Access; Sanitation Access; Hygiene Access; Institutional	Survey of organizations collecting and reporting WASH data	What is considered as an organization collecting and reporting WASH data will vary by location and should be adequately described.

INDICATOR	RELEVANT ACTIVITY CATEGORIES	CALCULATION METHOD(S)	ADDITIONAL GUIDANCE
Reduced incidence of water conflicts	Water Access; Institutional	Reported number of significant water conflicts each year	Incidence of water conflicts could be determined based on publicly-accessible research, such as media reports, news stories, and data taken from governmental sources. Online sources, like Statista, collect data on the number of water conflicts by year and by continent (Statista, 2022).
Increased institutional capacity	Water Access; Sanitation Access; Hygiene Access; Institutional	Reported number of active water management groups	Water management groups may include, but are not limited to, water user associations and WASH committees. If reported information is not available on the number of active water management groups, a survey can be shared with key stakeholders to understand which groups are active.
Increased property values	Water Access; Sanitation Access; Hygiene Access; Institutional	Reported average property value in area	While many factors play a role in property values, access to WASH services have the potential to improve livability and property values in an area. While most areas will have reported data on property values, local residents can be surveyed on the perceived property value in an area as some countries lack property value data.
Increased water-use efficiency	Water Access; Sanitation Access; Hygiene Access	Reported average water use efficiency of the primary water provider	Water-use efficiency may refer to the efficiency of a water system (loss of water due to leaks) or the ability of a company to use water efficiently (on-site water efficiency). SDG indicator 6.4.1 provides monitoring of water-use efficiency across all sectors (UN, 2023a and 2023b).
Increased service capacity	Water Access; Sanitation Access; Institutional	Reported maximum capacity of the primary service provider	This indicator can be measured for water supply or wastewater treatment services. It is recommended to work with local water utilities to determine service capacity. Alternative methods to quantify service capacity, focused on continuity of service, include the average number of hours of service per day or the number of failures/breaks per year per length of pipe.
Increased volume of water available for WASH	Water Access; Sanitation Access; Hygiene Access	Reported volume of drinking water available for direct human use	Water available for direct human use should be fit for drinking (e.g., potable water) and will likely include water for workplaces, communities and households. This should not include non-potable water used for agricultural or industrial uses. Local utilities and water service providers can be consulted (either through direct communication or published reports) to determine the volume of drinking water available for direct human use in the target area.

WASH 4WORK

More information about the WASH4Work initiative is available at www.wash4work.org.
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