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Sustainable WASH Systems Learning Partnership

Measuring Systems Change in WASH Programming: A Practical Application of Two Tools

Brittany Ajroud, Daniel Hollander, Shawn Peabody
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Introduction

Within the water, sanitation, and hygiene (WASH) sector, governments, practitioners, and donors are recognizing a difficult truth: much of the water and sanitation infrastructure built through development programs prematurely falls into disrepair.¹ Given this shortcoming, sector donors and assistance providers are looking beyond the construction of infrastructure to the non-physical systems that support and maintain functional services. Often referred to as “systems approaches” (see Box 1), these interventions seek to understand, engage with, and positively influence the networks of actors and the interacting factors that deliver services, theoretically leading to improved service delivery and sustainability.

The United States Agency for International Development (USAID) developed guidance on the topic, the Local Systems Framework, which states that understanding and strengthening the system as a whole is key to sustaining development outcomes.² The Local Systems Framework defines sustainability as “the ability of a local system to produce desired outcomes over time.”³ Projects contribute to sustainability through system-strengthening interventions that are valued and result in a continuous supply of the resources the system needs to continue functioning.⁴ In 2015, recognizing the disconnect between infrastructure investment and sustainability of services, the top-line goals for the WASH sector shifted from the Millennium Development Goals, which mainly focused on increased access to infrastructure, to the Sustainable Development Goals (SDGs), which focus on sustained access to adequate services.⁵

USAID also produced an accompanying technical note on the critical elements needed to identify leverage points for introducing and maintaining change. Referred to as “The 5Rs,” they include results, roles, relationships, rules, and resources, and collectively help a project team identify what they should listen for, where they should engage, what should be discovered, and what interventions may be needed.⁶ There are several tools, including the two featured in

¹ RWSN Executive Steering Committee. “Myths of the Rural Water Supply Sector.” RWSN (2010). <https://www.rural-water-supply.net/en/resources/details/226>.

² Available at: <https://www.usaid.gov/policy/local-systems-framework> (accessed August 15, 2019).

³ Ibid.

⁴ Ibid.

⁵ Available at: https://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E (Accessed April 4, 2020).

⁶ USAID. “The 5Rs Framework in The Program Cycle.” (2016). <https://usaideallearninglab.org/library/5rs-framework-program-cycle>.

this document, that can be used to understand and evaluate the 5Rs. However, it is important to note it is not the tools that determine the effectiveness of a systems approach, but rather the persistent appreciation of the dynamic of actors, their interactions, and the emergent results those interactions produce.

BOX 1. DEFINITION OF A SYSTEMS APPROACH

The USAID-funded Sustainable WASH Systems Learning Partnership defines a **systems approach** as one that:

- Seeks to understand the complexity, interactions, and interdependencies between actors and factors in a deliberate, rigorous manner;
- Acts based on this understanding; and
- Regularly adapts to feedback and changing conditions.

Underlying a systems approach is the recognition that social, political, and environmental contexts are complex, with multiple interacting parts.⁷ In such contexts, the need for effective monitoring is even more acute because the impacts of interventions are hard to predict in advance and are likely to have unforeseen effects.⁸

The complex nature of systems change makes it difficult to track progress and measure outcomes when system strengthening is a priority. Change within systems is rarely linear and involves a range of actors working to produce a set of conditions that enable change. Systemic changes are often brought about by a number of interrelated causes. It is usually impractical or impossible to calculate the impact of specific actions or activities. Additionally, many components of a WASH system — including policies and regulations, institutional capacities, and organizational practices — change slowly, with impacts that cannot be fully observed in the near- or mid-term (i.e., during a typical 5-year project cycle).

Despite these challenges, it is possible to measure systems change when using the right methods. USAID and others have published many tools and guidance documents on the topic.^{9,10,11,12} It is important to have a clearly articulated systems-based theory of change to set the overall framework for monitoring and evaluation (M&E) and facilitate the identification of information needs. From there, a project team can determine the best mix of tools and methods to capture shifts in the underlying or structural elements and relationships characterizing a system. Indicators should be supplemented by other measures (e.g., technical analyses) and qualitative narratives from users and beneficiaries to enhance understanding of how change is unfolding on the ground.¹³

This guide describes how one project, the USAID-funded Sustainable WASH Systems Learning Partnership (SWS) (see Box 2), built a complexity-aware monitoring approach to measure changes in local WASH systems as part of its performance management framework. By integrating these monitoring methods into regular reporting mechanisms, SWS achieved consistent data collection and analysis, making the results readily available to key project decision makers. This guide is intended to help other project teams considering how to monitor their activities and impacts.

⁷ The system is defined as being comprised of actors (consumers, public institutions, private sector, civil society, etc.) and factors (both financial, institutional, social, and regulatory factors and asset management, service delivery models, etc.) and the dynamic interrelationships among them, all of which influence rural water service delivery.

⁸ Britt, H. "Discussion Note: Complexity-Aware Monitoring." USAID. Washington, D.C. (2016).

⁹ Ibid.

¹⁰ USAID. "Local Systems: A Framework for Supporting Sustained Development." (2014). <https://www.usaid.gov/policy/local-systems-framework>.

¹¹ "Monitoring Results of Complex Systems Change." WaterAid Discussion Note.

¹² Jones, H. "A Guide to Monitoring and Evaluating Policy Influence." Overseas Development Institute Background Notes. (2011). <https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/6453.pdf>.

¹³ "Monitoring Results of Complex Systems Change." WaterAid Discussion Note.

BOX 2. INTRODUCTION TO SWS

SWS is a 5-year cooperative agreement testing systems-based approaches, concepts, and tools to improve WASH service sustainability. SWS includes four project teams, each with a different focus (rural water and small town sanitation) and country context (Kenya, Ethiopia, Uganda, and Cambodia). The project's underlying theory of change is that by understanding local WASH systems and using systems-based analytical tools and processes, interventions can be identified to strengthen these systems, which can lead to an improvement in the sustainability of local services.

SWS uses two primary methods to measure different aspects of systems change:

- **Outcome mapping**¹⁴ to track progress in influencing the behaviors and actions of direct partners on the project; and
- **Sustainability scorecards** to measure the status of financial, institutional, environmental, technological, and social components of the system that are expected to influence sustainability.

SWS selected these methods for their complementarity. The scorecards provide an annual high-level assessment of critical factors that contribute to sustainable service delivery. At the same time, outcome mapping allows for the ongoing monitoring of changes in the behaviors and relationships of actors in the system. These methods supplement SWS's other standard approaches to performance monitoring, such as quantitative monitoring of project activities and outputs and in-depth technical and contextual baselines and analyses. Additionally, SWS requires implementation teams to keep careful project records (e.g., meeting reports, after-action reviews, staff notes) so information can be cross-referenced and fact-checked. SWS is building an evidence base to serve as a resource for implementation teams as they learn from and adapt their activities, and for dedicated research teams focused on learning across contexts for more generalizable lessons and insights.

The next sections introduce the methodologies for outcome mapping and scorecard development and describe their use within SWS, followed by a section summarizing lessons learned and general reflections on measuring systems change. Annex A provides additional resources on the topic. Annex B presents more detail on the sustainability scorecards developed by SWS for rural water and small town sanitation service provision. Annex C contains annotated performance indicator reference sheets (PIRS) for outcome mapping and the scorecards. Annexes D and E provide sample reporting forms for outcome mapping and the sustainability scorecards, and Annexes F and G present additional templates of tools SWS uses to collect qualitative information. Project teams can reference and adapt these resources to develop monitoring protocols.

¹⁴ Hearn, Simon. "Outcome Mapping." Better Evaluation. January 9, 2019. https://betterevaluation.org/en/plan/approach/outcome_mapping.

OUTCOME MAPPING

Overview

Outcome mapping is a technique for monitoring changes in the relationships, practices, and actions of actors in a system a project directly influences.¹⁵ Project teams do this by defining a set of desired behaviors — with differing levels of proximity to the project’s interventions — for individuals, groups, and organizations, and then using a project journal to record observed changes as they unfold. Outcome mapping seeks to understand how a project might have contributed to observed changes in the relationships, practices, and actions of the actors in a system.

Outcome mapping recognizes there are many factors outside of a project’s control. It seeks to understand the contribution a project makes to change by focusing on the level where a project has direct influence, known as the “sphere of influence” (see Figure 1). A project has little control over long-term changes in the state of a system. However, it can influence certain people and groups responsible for bringing about larger changes.

BOX 3. EXAMPLE USE OF OUTCOME MAPPING FOR PREVENTIVE MAINTENANCE MODEL

To keep water flowing in a rural community under a preventive maintenance model,¹⁶ a project team might monitor the incremental changes in the behavior of communities that receive preventive maintenance services, and in the sub-county government that regulates preventive maintenance. Illustrative changes in the behavior of communities might include signing preventive maintenance service agreements, registering as community-based organizations and opening bank accounts, and demonstrating a willingness to pay higher water service fees. Illustrative changes in the behavior of sub-county governments might include adopting resolutions supportive of preventive maintenance, having a clear division of roles and responsibilities for preventive maintenance, and formally allocating a percentage of their budget to preventive maintenance.

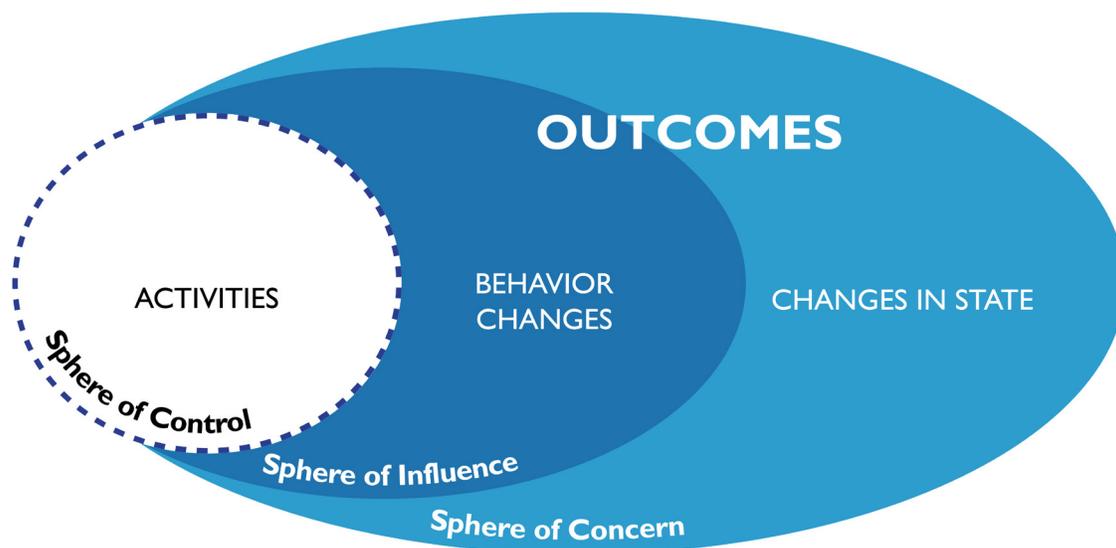


Figure 1. Outcome mapping measures behavior changes in a project’s sphere of influence. These behaviors are outside the direct activities within the project’s sphere of control and are necessary for changes in the state of the system within the project’s sphere of concern.

¹⁵ Outcome mapping was developed by Canada’s International Development Research Centre to understand the effectiveness of development programs. It consists of 12 steps organized into three stages, corresponding to designing, monitoring, and evaluating an intervention. This document focuses on its use as a monitoring tool and only covers a subset of elements and tools. The first comprehensive resource on the technique was published in 1971 and updated in 2001. It is available at: <https://www.idrc.ca/sites/default/files/openebooks/959-3/index.html> (accessed August 15, 2019).

¹⁶ Preventive maintenance models are those that proactively service, repair, and replace hardware to deliver a more reliable, guaranteed service.

Boundary partners are the individuals, groups, and organizations with whom a project interacts directly and anticipates opportunities for influence.¹⁷ In other words, these actors contribute to and are part of a project’s vision, and the project team can regularly communicate with them to affect change. Within a WASH system, boundary partners might include water operators, health extension workers, water committees, NGOs, and government agencies. Boundary partners differ from the project implementation team, other beneficiaries, and actors with whom there is no opportunity for direct influence (e.g., a neighboring community). In the above example, communities and county government are examples of boundary partners.

Once boundary partners have been identified, their desired changes in behavior are captured through a goal statement and progress markers. The **goal statement** describes the ideal behavior of a single boundary partner.¹⁸ The goal statement should:

- *Capture real transformation.* It should explain how the boundary partner will behave differently if the project is highly successful.
- *Be specific.* It should describe observable behaviors, rather than general statements describing values or perceptions.
- *Provide sufficient detail.* It should be specific enough that someone without specialized subject or contextual knowledge can understand and appreciate what the boundary partner has done.

Annex B further illustrates these concepts and provides examples of strong goal statements.

Progress markers are a set of statements describing a progression of changed behaviors leading toward the ideal goal statement. Progress markers provide a structure for gathering information to know whether a boundary partner is moving toward a goal statement or if course corrections are needed. They act as indicators that advance from early, positive actions one would expect to see (e.g., government regularly convening meetings with key actors to discuss rural water services delivery) to more profound changes in behaviors the team would love to see (e.g., government allocating sufficient financial resources to support the sustainability of rural water services). Table I provides an example goal statement and progress markers for a team hoping to influence multiple actors through a collective action platform.¹⁹

Table I. Goal Statement and Progress Markers (Adapted from SWS cases)

Goal Statement: By September 2021, coalition members are working as a cohesive team to identify and solve challenges related to their common vision of improving the quality and sustainability of rural water services.	
<i>Expect to See</i>	
1	Coalition member organizations are consistently sending high-level representatives who are actively participating in meetings.
2	Coalition members are creating and implementing annual work plans based on explicit priorities that align with the common vision.
<i>Like to See</i>	
3	Coalition members are working between meetings on individual and/or joint activities identified and consistently reporting on their progress.
4	Coalition members are growing their capacity to plan, facilitate, and evaluate coalition activities. They are increasingly leading activities with less guidance and engagement from an outside facilitator.
<i>Love to See</i>	
5	Coalition members are demanding high-quality information, contributing to knowledge management systems, and using best-available information for decision-making and planning.
6	Coalition members are collaborating on activities identified by the group as needed to advance the common vision.

¹⁷ Earl, S., Carden, F., and Smutylo, T. *Outcome Mapping: Building Learning and Reflection into Development Programs*. (2014). Ottawa: IDRC Books / Les Éditions du CRDI.

¹⁸ This term is referred to as the “outcome challenge” in outcome mapping terminology.

¹⁹ Collective action is a process for improving a public service in which sectoral stakeholders regularly convene and take joint actions to address shared problems and in which (1) problems are complex and their solutions require deliberation and action by many actors, (2) members agree on a shared vision and shared problem definition, and (3) stakeholders clarify responsibilities for service provision and hold each other accountable for actions. Source: Pugel, K., and Peabody, S. “Defining Collective Action Approaches in WASH.” USAID/Sustainable WASH Systems Learning Partnership, April 2020. <https://www.globalwaters.org/resources/assets/sws/defining-collective-action-approaches-wash>.

To manage the amount of data needing to be collected, project teams should limit the overall number of progress markers they are reporting on. A good rule of thumb is up to nine progress markers per boundary partner. Each progress marker should be formulated as “who is doing what” and should describe behaviors, not outputs. For example, “there are district council meetings focused on WASH issues” is not an appropriate progress marker because it describes an output, not a changed behavior. In this case, the project team should think about who influences the agenda of district council meetings and the specific behaviors they would like them to exhibit in convening and facilitating meetings (e.g., “county government is convening quarterly meetings with clearly structured and thematic agendas that elicit meaningful engagement from all actors”).

An **outcome journal** is used to record observations on the boundary partners’ achievement of progress markers. Observations can include notes from interviews with stakeholders, remarks by decision makers at meetings (recorded in the minutes), references to news reports or public speeches, or even team members’ personal observations. Outcome mapping acknowledges and values the experience and local knowledge of the project team. The outcome journal provides a process to systematically record observations to understand and react to changes in the system. Annex B includes sample outcome journal entries from SWS.

Use of Outcome Mapping in SWS

What is it?

- A tool for setting and tracking targeted changes in the behaviors of stakeholders in a system.

What did SWS use it for?

- To monitor the project’s progress in influencing the decisions and behaviors of local people and organizations involved in service delivery.

What resources did it require (per each 6-month reporting period and geographic area of analysis [district, county, etc.]?)

- Ongoing use of project journaling to record observations.
- One to two days for a field staff member to synthesize and report on recorded observations.
- One day for a senior staff member or M&E specialist to review entries, do quality control, and follow up with field teams on missing or unclear information.
- One hour of staff meeting time to review and reflect on results.

Outcome mapping is the primary qualitative methodology used within SWS. Environmental Incentives (EI) and the University of Colorado Boulder (UCB) facilitated a process with project teams to identify their boundary partners and develop a goal statement and progress markers for those boundary partners. SWS selected local geographic boundaries (districts, counties, or small towns) where project teams are active as the unit of analysis. This decision allows for a more useful application of the findings from outcome mapping by the local teams (as opposed to working at the regional or national level). In each geography, project teams are building and facilitating multi-stakeholder platforms. Many project teams selected these platforms — referred to as “coalitions” — as their boundary partner, even though the platforms are made up of individuals from different organizations and institutions.

Each team took a different approach to selecting their boundary partners. Teams that selected a coalition as their boundary partner created progress markers for that coalition (e.g., coalition members are regularly attending meetings, sending high-level representatives from their institutions, and actively participating in discussions). Other teams identified a few key actor groups as their boundary partners and created progress markers for each group (e.g., communities are renewing preventive maintenance service agreements, county government is implementing adopted resolutions).

Project teams report on outcome mapping data every 6 months and are expected to collect data on a more frequent basis. To promote better learning and local ownership, project teams created their process for regular data collection based on organizational capacity, information needs, and existing documentation practices. Outcome mapping offers project teams the flexibility to ramp up or scale back data collection based on the specific needs of the project.

Box 4 provides an example of a more rigorous application under SWS, through which field teams collect qualitative information regularly that is fed back to senior leadership through weekly calls.

BOX 4. WHAVE PROJECT DOCUMENTATION EXAMPLE

In Uganda, Whave is working with district governments, communities, hand pump mechanics, and other actors to develop preventive maintenance service contracts. Whave uses two tools to capture important lessons and observations about their approach from field teams: after-action reviews and changelogs.

Whave conducts **after-action review meetings** with field teams following key events or activities, such as a meeting with district government officers or a community mobilization training. Teams use a questionnaire template (see Annex F) to guide these discussions and record notes. It includes questions on what was supposed to happen, what happened, what the team learned, and what comes next. Teams also record observations relevant to the progress markers for the district where the event took place.

Whave uses **changelogs** (a form of project journals) to regularly gather information from the field for use in reporting and decision-making. A standard set of questions (see Annex G) ensures key areas of interest are regularly tracked and reviewed. These interests include changes in actors' understanding of preventive maintenance, actions these changes in understanding lead to, and the actors and factors that either support or interfere with service delivery. Whave senior leadership also uses the changelogs to guide weekly check-in calls with field teams. During the call, Whave field staff share significant stories of change answering important questions, including:

- What happened (changes in understanding, actions, development of the legal framework or regulations, etc.)?
- Who did it (community member, Water and Sanitation Committee, local government, hand pump mechanic, Whave, etc.)?
- Where and when did it happen?
- What caused the change to happen?
- How did Whave influence the change that occurred?
- What was the outcome of the change?
- Were there any barriers or opportunities before the change could take place or after the change happened?

At the end of the reporting period, the Whave M&E specialist reviews the after-action review forms and changelogs and transfers the most relevant information to the outcome mapping reporting forms. By recording observations throughout the reporting period and immediately after significant events, Whave can gather more information and of higher quality than if they completed the outcome mapping reporting forms solely based on what the team can recall at the end of 6 months. Figure 2 provides an estimate for the time it takes the M&E specialist to collect, analyze, and report on outcome mapping data within a 6-month reporting period.

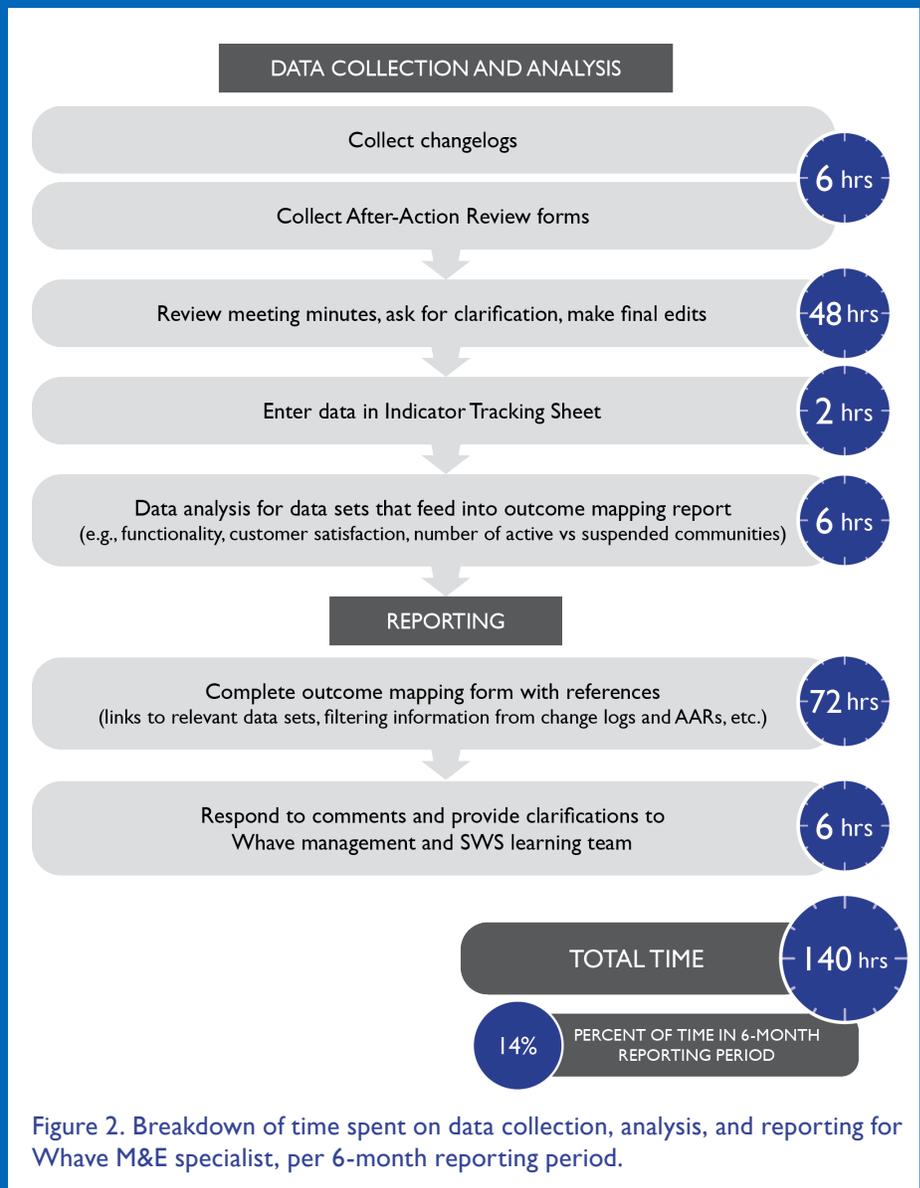


Figure 2. Breakdown of time spent on data collection, analysis, and reporting for Whave M&E specialist, per 6-month reporting period.

While the documentation process differs slightly for each project team, SWS uses a standardized reporting format. Project teams fill out a scoring sheet for each district or small town. They rate each progress marker for that district or small town on the degree to which it was achieved during the reporting period (low, medium, or high). Progress marker ratings are self-scored; however, project teams provide a narrative to defend their rating and link to supporting documentation (e.g., meeting minutes, interview responses, data from systems analyses). Annex D provides a sample entry for the outcome mapping reporting form.

SWS added this scoring system to include outcome mapping as a custom USAID performance indicator for the project.²⁰ The performance indicator measures the average rating of all progress markers for each district or town with baseline and target values. While the scoring system is useful for assessing progress over time through a quantitative lens (i.e., tracking shifts from “low” to “medium” or the number of progress markers achieved), building a qualitative narrative is the most valuable aspect of including outcome mapping as a monitoring method.

SUSTAINABILITY SCORECARDS

Overview

Scorecards assess the overall state of a system. They track large-scale changes in the system, including factors outside of a project’s sphere of control. As a result, there is increased uncertainty about a project’s contribution to any observed results. Nonetheless, scorecards provide a useful complement to outcome mapping. Whereas outcome mapping focuses on people, scorecards focus on broader changes in key systems components, allowing project teams to see a more complete picture of change and make informed programming decisions.

USAID’s Journey to Self-Reliance Country Roadmaps²¹ and the Sanitation and Water for All Building Blocks²² are examples of scorecards used to track high-level (country) progress over time. There are numerous examples of scorecards in the WASH sector that aim to monitor changes in the system. Some frameworks focus almost entirely on service levels, with a few indicators that consider broader system components. Others, including the UNICEF Sustainability Checks and the USAID Sustainability Index Tool, focus primarily on system components.

The following are considerations for project teams in designing or adapting scorecards:

1. **Valued results:** Teams should make sure target results are valued by local actors and can be translated through a positive feedback loop into a continuing supply of resources that ensure sustainability. To do this, project teams should engage actors in early systems mapping to understand the system as it is and identify opportunities for change and conduct a visioning exercise to describe the desired future system.
2. **Feasibility:** Teams should consider both the level of information needed for learning and accountability purposes and the human and financial resources available for M&E. Teams should develop a focused set of indicators that assess key factors affecting systems change rather than compiling an exhaustive list, which can quickly become costly and time-intensive to measure.
3. **Capacity within the project team:** Instruments for data collection and reporting should reflect local contexts and capacities. Project teams should consider who will be responsible for data collection and reporting as they are designing these instruments. Often, data collection and reporting are the responsibility of individuals outside of the design team. To the extent possible, these individuals should be engaged from the beginning to ensure their capabilities and constraints are carefully considered.
4. **Scoring system:** Each indicator is tied to a desired quality or change that progresses along a scale (e.g., 1–5 or low, medium, high). Criteria should be clearly defined, and the design of the scoring system should be as easy to use as possible. For example, if project teams find it difficult to differentiate across criteria on a 5-point scale, a 3-point scale may be more appropriate.

²⁰ For another example of a performance indicator based on outcome mapping, see USAID Standard Foreign Assistance Indicator CBLD-9: Percent of U.S. Government-assisted organizations with improved performance. Available at: <https://www.usaid.gov/npi/capacity-building-indicator-resources> (accessed February 24, 2020).

²¹ Available at: <https://selfreliance.usaid.gov/> (accessed January 31, 2020).

²² Available at: <https://www.sanitationandwaterforall.org/about/our-work/priority-areas/building-blocks> (accessed January 31, 2020).

- 5. Timescale for reporting:** It takes time to observe large-scale changes in systems. Project teams should consider reporting on a less-frequent basis (e.g., annually or biennially) to allow sufficient time for change to occur, while building in a more regular process to synthesize evidence and observations (e.g., monthly documentation).

BOX 5. RISKS ASSOCIATED WITH A SCORECARD APPROACH

There are risks associated with breaking a complex system into segmented parts using a scorecard approach. These risks include focusing on what a system looks like rather than how it functions (e.g., policy exists but is not being implemented), overlooking the interconnections and interdependencies that drive performance, and encouraging a static view of the system through fixed indicators that fail to capture emergent changes.²³ Pairing a scorecard with outcome mapping, to an extent, mitigates these risks because the two approaches are complementary. Outcome mapping uses a flexible, actor-centered approach, allowing for the tracking of system dynamics and interactions, including unpredicted or emergent issues. While the scorecards provide an annual high-level assessment of the strength of the system.

Use of Scorecards in SWS

What is it?

- A tool for tracking changes in the status of key components of the system — financial, institutional, environmental, technological, and social — that influence its ability to deliver sustainable services.

What did SWS use it for?

- To monitor changes in key components of a system that impact sustainability, beyond the specific components the project is targeting.

What resources did it require (annually, per geographic area of analysis)?

- One to three days for a field staff member to complete a scoring sheet, depending on how much information the project team had at their disposal and how easy it was to synthesize that information.
- One day for a senior staff member or M&E specialist to review entries, do quality control, and follow up with field teams on missing or unclear information.
- One hour of staff meeting time to review and reflect on results.

SWS created scorecards to track changes in system components that affect the sustainability of WASH services and to understand how these components shift over time. Given the project's focus on post-implementation sustainability, the team felt direct measures of service levels were not feasible. The scorecards are customized for the project's two active sub-sectors (rural water and small town sanitation) and reported on annually. They serve as an essential performance monitoring and management tool, allowing USAID and SWS partners to assess progress in strengthening the local systems that sustain WASH service delivery.

To identify a framework to adopt for the scorecards, SWS reviewed 13 existing frameworks with diverse sets of indicators from the WASH sector (see Box 6).²⁴ The team then selected three frameworks — the IRC Building Blocks

²³ WaterAid. "Beyond Building Blocks? Identifying and Monitoring Dynamic Drivers of System Performance." (2019). Available at: <https://washmatters.wateraid.org/publications/beyond-building-blocks-identifying-and-monitoring-dynamic-drivers-of-sector> (accessed November 27, 2019).

²⁴ This document does not summarize or compare existing sets of indicators, as this has been done extensively by UNICEF, Aguaconsult, and others. The Triple-S Project reviewed 25 tools for WASH sector sustainability and summarized them in a series of single-page PDFs. They are available at: <https://www.ircwash.org/news/25-wash-sustainability-tools> (accessed August 19, 2019).

Assessment (national and district), the World Bank Water and Sanitation Program (WSP) Enabling Environment Assessment, and the WASH Alliance FIETS (financial, institutional, environmental, technological, social) Framework — for direct comparison against different components of sustainability. These frameworks were selected for their relevance to SWS's work and comprehensiveness in covering a range of identified components. Ultimately, SWS decided to use FIETS as the overall framework for the scorecards.²⁵ However, the team drew from relevant indicators in the Building Blocks Assessment and the World Bank WSP Enabling Environment Assessment and further refined and adapted these indicators following consultations with key project staff.

BOX 6. WASH MONITORING FRAMEWORKS REVIEWED BY SWS

1. UN Water Global Analysis and Assessment of Sanitation and Drinking Water
2. WASH Bottleneck Analysis Tool
3. UNICEF Sustainability Checks
4. World Bank WSP Enabling Environment Assessment
5. Sustainable Development Goal 6
6. UNICEF Building Blocks
7. Sanitation and Water for All Collaborative Behaviors
8. Triple-S Guidelines
9. Ten “Golden” Indicators for Uganda
10. WSP Country Status Overviews
11. IRC Building Blocks Assessment
12. USAID Sustainability Index Tool
13. Wash Alliance FIETS framework

Similar to the outcome mapping process, SWS began scorecard development with a visioning exercise, anchored around the FIETS framework. EI and UCB consulted with several experts within SWS to determine a vision for each component of sustainability for both rural water and small town sanitation service provision (see Figure 3 and Annex C). For example, the vision of sustainability for the institutional component of small town sanitation service provision is comprised of four sub-components:

- **Defined roles and responsibilities:** Communities, government, and private sanitation businesses have clearly defined roles and responsibilities for monitoring and delivering sanitation products and services, and they work collaboratively to meet the demand of the community.
- **Local technical expertise:** Private sanitation businesses provide technical expertise in-country, with adequate mechanisms and training programs in place for institutionalizing knowledge and expertise.
- **Accountability:** There are effective mechanisms in place for consumers to hold providers and authorities to account.
- **Local government expertise:** Local government can successfully implement, manage, or finance sanitation services.

Based on these definitions, SWS created a scoring system using low, medium, and high criteria for each sub-component identified through the visioning exercise. Annex B presents the full scorecard framework developed for rural water and small town sanitation service provision.

Project teams complete a reporting form for each geographic area where SWS is active. For each component of sustainability, teams assign a low, medium, or high rating using pre-defined criteria. They justify how they arrived at that rating with supporting data and links to reference materials. Teams assign an overall score to each of the five components of sustainability and provide a supporting narrative for each sub-component (see Annex E). They then calculate an overall score composed of an unweighted average of the five components of sustainability. As with outcome mapping, this overall score is used to report on the custom USAID performance indicator for the project. If the overall score increases by any amount, this is considered an improvement in the likelihood of services being sustained.

²⁵ More information on the FIETS approach is available at: <https://wash-alliance.org/our-approach/sustainability/> (accessed August 19, 2019).

SWS's Vision of Sustainability for Small Town Sanitation Services	
Financial 	<p>Financial sustainability means that continuity in the delivery of products and services related to sanitation is assured, because the activities are locally financed (e.g., taxes, local tariffs and fees, local financing) and do not depend on external (foreign) subsidies. The following conditions should be observed:</p> <ul style="list-style-type: none"> • Households can access and afford professional repair and are able to manage fecal waste (pit emptying or relocating latrine structures as needed). • Households can access and afford to purchase sanitation products and services and perform major repairs or upgrades.
Institutional 	<p>Institutional sustainability means that sanitation services, institutions, policies, and procedures at the local level are in place to support a system to monitor and support households and communities to sustain their sanitation services beyond the initial stage of construction. Users, authorities, and service providers at the local and national levels are clear on their respective roles, tasks, and responsibilities, can fulfill these roles effectively, and are transparent with each other. The following conditions should be observed:</p> <ul style="list-style-type: none"> • Local authorities continually monitor and enforce regulations and oversight over sanitation services and the organizations, people, and institutions that provide these services. This occurs free from undue political influence (well-informed consumers and operators, effective system-wide accountability and appropriate sanctions). • Structures and institutions exist (government, private sector, NGO) to provide guidance, strategic thinking, and planning for sustaining sanitation services. These institutions can anticipate household sanitation service needs. Within these structures, organizations are aligned and coordinated.
Environmental 	<p>Environmental sustainability means that sanitation services are placed in the wider context of the natural environment. This is demonstrated through an integrated approach to sustainably manage sludge and waste(-water) flows and resources. The following conditions should be observed:</p> <ul style="list-style-type: none"> • Local government, communities, and the private sector are coordinating and acting to protect natural water sources from fecal contamination. • Effective fecal sludge management measures are in place for on-site sanitation systems (as appropriate).
Technological 	<p>Technological sustainability of sanitation services means that the technology or hardware needed for the services supports good quality, durable construction of latrines and other sanitary facilities. The following conditions should be observed:</p> <ul style="list-style-type: none"> • The type and quality of construction materials used to build latrines prevent collapse and overflowing. • Households are able to perform regular maintenance to keep the latrine in good working condition (e.g., working toilet seat, intact water seal, functioning vent pipe and wire mesh to keep flies out). • The public or private sector offer services for pit emptying, transporting sludge, and proper disposal.
Social 	<p>Social sustainability of sanitation services means that the appropriate social conditions and prerequisites are realized to sustain healthy and livable communities. Interventions are demand-driven, inclusive (equity), gender transformative, culturally sensitive, and needs-based. The following conditions should be observed:</p> <ul style="list-style-type: none"> • Ongoing hygiene promotion and behavior change services effectively engage households to create a social norm for latrine use and handwashing and against unhealthy sanitation behaviors.

Figure 3. Vision for each aspect of sustainability for small town sanitation services. SWS used this vision to develop rating criteria for its sustainability scorecard.

Project teams are conducting multiple analyses within SWS, including organizational network analysis, factor mapping, life-cycle cost analysis, building blocks assessment, and more. The scorecards are not meant to replace these analyses. Instead, they provide a structure for synthesizing and summarizing information developed by SWS and other evidence. While the scorecards are filled out by SWS partners (and do not require external consultation), many of the analyses that inform teams' ratings are conducted with stakeholders. SWS decided not to require external consultation in completing the scorecards to (1) limit the number of requests made to local stakeholders and (2) avoid introducing a measurement tool to the local system that may duplicate or conflict with existing national-level scorecards. SWS project teams may choose to consult with stakeholders and/or report back findings as appropriate for their local context.

One critical use of the scorecards is contextualizing progress and challenges when implementing activities. For example, in Ethiopia's Afar region, SWS observed the institutional and financial component scores to be trending downward, independent of SWS activities. Based on this information, the project team decided to incorporate institutional strengthening and financial planning (two new priority activities) within their programming.

ADDRESSING CHALLENGES IN MONITORING SYSTEMS CHANGE

Challenges with Data Collection

Resource Constraints

Outcome mapping and sustainability scorecards can provide actionable information that may otherwise be overlooked. However, this information comes with costs in terms of time, expertise, and training. These costs will vary depending on the frequency of data collection, the team's existing capacity for qualitative monitoring, and the amount of training required.

The approaches described in this paper can be a major change in how teams monitor progress and collect performance data. It can be a costly and time-consuming endeavor to create new platforms, structure and use written documentation, and train staff to use these tools effectively. Within SWS, regular training and engagement were critical to helping M&E staff understand how the tools worked and how data was to be collected, stored, and interpreted. Before adopting qualitative monitoring techniques, teams should consider the resource requirements, costs, and benefits. They should also start with pilot projects before launching at scale so early lessons can be incorporated more fluidly into the new monitoring systems.

As a learning-oriented project, SWS could dedicate ample resources to M&E; however, projects facing significant resource constraints may need to scale back their approach. To reduce costs, project teams can lengthen the interval between data gathering or narrow the focus of data collection (e.g., reduce the number of boundary partners and/or progress markers reported on). Project teams need to decide, based on their available resources and interests, how to balance the costs of data collection and processing with the value of the data.

Data Collection Fatigue

Unpacking the vast amounts of qualitative data generated by outcome mapping and the scorecards can be challenging, resulting in data collection fatigue on the part of implementers. Teams should strive to collect the least amount of information that still achieves their goals. Outcome mapping and sustainability scorecards allow teams to synthesize multiple data sets into a coherent narrative that can be measured against pre-defined outcomes. However, there is often a temptation to expand data collection by creating specific data sets (e.g., an interview series) to answer specific questions, as opposed to leveraging data already collected. This can lead to data duplication and push beyond the team's capacity to analyze data and share findings. The marginal value of additional data often diminishes as a data set grows. Wherever possible, teams should utilize existing data sources and limit supplemental data collection unless the information is likely to be highly relevant to the needs of the project team or stakeholders.

Standardized Methods and Tools

While it is preferable to standardize data collection methods and tools (e.g., forms, spreadsheets) across project sites, this can be difficult in practice when different teams need to use the tools in disparate contexts. Standardization improves data reliability so data from different times and places can be meaningfully compared. However, in some cases, it may not be practical to use identical data collection, such as when different languages, cultural norms, and resource constraints require local adaptations.

SWS has the added challenge of teams working for different organizations with different monitoring practices. Moreover, these teams are focused on different sub-sectors (rural water and small town sanitation) and applying different activities. The project aimed to develop flexible but comparable methods, but a degree of contextual adaptation was required by each team. Project data collection forms were therefore modified significantly, and each team developed a system for storing information (spreadsheets, running call logs, etc.). However, the format and frequency of data reporting were standardized to set clear guidelines for documentation and analysis. This allowed the project to retain substantial data comparability, while also responding to limitations and differences across teams in their capacity for data collection, storage, and analysis.

Mitigating Bias

All forms of data collection are susceptible to bias, which distorts the validity and reliability of findings. For example, confirmation bias — the tendency for people to seek out (consciously or subconsciously) information and data that confirms their pre-existing ideas (e.g., “I work for a successful project”) and to downplay or ignore information that does not confirm their ideas — is a common issue with qualitative reporting and survey or interview information sources. This might lead teams to over-report positive observations and under-report others. Self-serving bias is another common issue. Self-serving bias is the propensity to attribute positive outcomes to skill (or project activities) and negative outcomes to luck (or contextual factors), which might lead teams to inflate the impacts of their project activities and minimize unintended negative consequences.

SWS attempts to mitigate confirmation and self-serving bias by conducting a multi-layered review process and requiring project teams to link recorded observations to information that can independently validate and verify reporting. Cross-referencing outcome mapping and scorecard data with other data sets will create a more rigorous evidence base. Additionally, organizations should strive to create a team culture in which unexpected and negative outcomes are valued as fuel for learning, innovation, and improved impact.

Another potential issue with data collection is recency bias, which occurs when people more prominently recall and emphasize recent events and observations over those in the near or distant past. To address this, SWS is incorporating a form of “project journaling” into regular reporting and communications. Project teams are expected to synthesize and reference this data source when reporting on outcome mapping and the scorecards.

Challenges with Data Storage

The high value of outcome mapping and scorecard data is its depth and detail. However, the vast amount of information collected with these methods can be overwhelming. While it is relatively easy to collect qualitative information, it can be a challenge to organize, manage, and analyze the information to produce meaningful results. Project teams need to develop a clear, meaningful file-naming system and standard operating procedures for transforming raw data into useful information. Often, this will include some form of coding to help organize the data and begin systematic data analysis. Project team members can then pull and sort the data based on key topics or different analytic lenses.

Early in the project, SWS tried to reduce information overload by abbreviating and summarizing data sets. However, the team found the summary process distorted the information and made it harder to connect trends to their source entries. The team also worried they might accidentally conflate distinct data sets in their summaries, such that an outcome reported in one district might seem to cause an outcome in another if both districts were summarized together.

Rather than condensing the data, SWS found it was more valuable to organize the data so it could easily be navigated and used. For example, at first, it was hard to assess outcome mapping trends over time because there was one form for each reporting period stored in separate folders. To get a sense of trends over time, one would have to locate these files, open multiple forms, and compare them section by section. Without a more user-friendly system, the project teams were unable to make efficient use of the data sets. To address this issue, SWS collated entries for each geography into a simple database. This enables the team to navigate to one of the SWS geographic areas, select a progress marker, and read the “story” of outcomes that emerged in that place over time. Similarly, for the sustainability scorecards, entries are collated by geography and the different components of sustainability.

CONCLUDING LESSONS



You cannot measure systems change without designing for systems change.

A systems approach entails understanding the system as it is and envisioning a future state valued by actors. Comparing the two descriptions of the systems can help project teams identify the types of changes required and pathways for getting there.²⁶ Without these bookends — from what is to what is desired — there is no guarantee what a project team is measuring is important for gauging whether the system is changing in ways that will achieve sustainability.



If you want to capture multiple components of systems change, use a mixed-method approach.

As is clear from existing USAID guidance and SWS's experience, there is no single tool that can comprehensively measure systems change. Systems are made up of numerous interacting actors and factors, and these different components require multiple methods to capture changes in key factors that impact the system (e.g., sustainability scorecards) and to elicit observations from actors in the system (e.g., outcome mapping). Together, these measures of state and behavior change can tell a more complete story of how the system is changing than either one could alone.



Monitoring methods should be nimble enough to capture the unexpected.

The process of systems change is non-linear and involves a range of factors and actors working together to produce a set of conditions that enable change. Because systemic changes are often brought about by a number of interrelated causes, it can be impractical or impossible to calculate the impact of specific actions or activities. While the sustainability scorecards provide an annual high-level assessment of the strength of the system, outcome mapping documents the events and actions that precede and contribute to systems change. behavior change can tell a more complete story of how the system is changing than either one could alone.

²⁶ USAID. "The 5Rs Framework in The Program Cycle." (2016). <https://usaidlearninglab.org/library/5rs-framework-program-cycle>.



Focus on capturing incremental progress, in lieu of systemic change, given limited project durations.

Systems change is a long-term process with slow-moving variables not captured through “high jump” targets, where project teams only record measurements when getting over the bar (e.g., Sustainable Development Goal 6). Instead, project teams should aim for “far jump” goals, where they get credit for advancing some distance toward the goal. By tracking incremental progress, project teams can capture emergent patterns of behavior and analyze small contributions along the way and, most importantly, use that information to adapt their approaches.



Build in space and time for reflection.

The need for learning and adaptive management increases in highly dynamic and uncertain contexts. It is, therefore, imperative to provide regular opportunities for teams to discuss, critically reflect on, and make sense of monitoring data. This practice enables good project management and helps teams better understand the challenges and opportunities in their work and course-correct as needed. Ideally, these practices should be embedded in the regular rhythms of the project to ensure uptake. SWS creates space for reflection through semi-structured interviews with project teams as part of the semi-annual reporting process and by facilitating an annual pause-and-reflect event with each team.



Take steps early on to build the team’s capacity to undertake qualitative data collection and reporting.

It may take several reporting periods for individuals to feel confident collecting and reporting on data in new ways. Initial and ongoing training is needed, which may include regular check-ins with individuals responsible for data collection and providing sufficient time to review and verify entries. One common pitfall is not providing sufficient detail. Often, recorders find it easy to write about the facts (who did what, when, and where) but forget to describe why a particular observation is significant. The “why” contextualizes the story so an external reviewer can appreciate the significance of, for example, a finance minister attending a meeting.

ANNEX A: ADDITIONAL RESOURCES

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ANNEX B: OUTCOME MAPPING RESOURCES

Table 2. Examples of Poor and Strong Goal Statements

Poor Statement	Strong Statement
<p>Communities trust local technicians and community water committees.</p> <p><i>This statement does not describe an observable behavior. How would the concept of “trust” show itself in what communities do differently?</i></p>	<p>Communities are renewing their preventive maintenance service agreements and regularly paying maintenance bills.</p>
<p>District and county governments are passing resolutions.</p> <p><i>This statement does not reflect transformational change; rather, it is something the team can expect to see by the mid-point of the project.</i></p>	<p>District and county governments are implementing and enforcing resolutions, publicly supporting a preventive maintenance approach, and dedicating a portion of rural water funds to preventive maintenance.</p>
<p>Community-based organizations and government at all levels are using a unified reporting system.</p> <p><i>This statement does not provide sufficient detail. It is not clear how the government will use the unified reporting system and would benefit from unpacking the different roles.</i></p>	<p>Community-based organizations are generating information on the status of rural water systems at the village level, and sub-county governments are enabling the transfer of that information to the county government. The county government is using the unified reporting system to inform policy and budget decisions.</p>

Table 3. Sample Outcome Journal Entries

<p><i>“Following discussions with the Regional Water Bureau on lessons learned from a recent project-initiated field visit, the district government began the process of opening a spare parts warehouse. Additionally, village-level water committee members agreed to take responsibility for minor maintenance issues, and the district agreed to take on major maintenance projects. Both will have access to the spare parts warehouse. This is a new clarification in the management model that resolves past issues around unclear roles and responsibilities and delays caused by slow procurement systems.”</i></p>
<p><i>“On December 20, 2018, the full District Council met to discuss rural water services. The chairperson indicated preventive maintenance services would be a high priority going forward. As part of his speech, he said, ‘I am less concerned with building a third well in a small village and more concerned that the two wells already there keep working.’”</i></p>
<p><i>“The average seniority score for the group attendees increased to 2.0 from 1.98, while consistency of actors participating also increased. Sixty-seven percent of the attendees had also joined the previous meeting, an increase of 14 percent.”</i></p>

ANNEX C: SUSTAINABILITY SCORECARDS

SWS's Vision of Sustainability for Rural Water Services	
Financial 	<p>Financial sustainability means that continuity in the delivery of products and services related to rural water is assured, because the activities are locally financed (e.g., taxes, local tariffs and fees, local financing) and do not depend on external (foreign) subsidies. The following conditions should be observed:</p> <ul style="list-style-type: none"> • Financing is available from domestic sources for major repairs and upgrades. • The fees required by the service provider are affordable to the households and paid through tariffs, and/or the service providers costs are partially subsidized by the public sector.
Institutional 	<p>Institutional sustainability means that rural water delivery systems, institutions, policies, regulations, and procedures at the local level meet the demand of users. Users, authorities, and service providers at the local and national levels are clear on their respective roles, tasks, and responsibilities, can fulfill these roles effectively, and are transparent with each other. The following conditions should be observed:</p> <ul style="list-style-type: none"> • The roles and responsibilities for community members, community leadership bodies, private operators, service provider entities, and government officials are known to everyone and followed. • The local government provides regulation and oversight to community members, community leadership bodies, private operators, and service provider entities to ensure they are fulfilling their respective roles, for example paying tariffs and fees and reaching performance targets. This occurs free from undue political influence (well-informed consumers and operators, effective system-wide accountability, and appropriate sanctions). • The local government (possibly through private service providers) provides ongoing water quality monitoring. • There is continual monitoring and enforcement of regulations and oversight by local authorities of water service providers, NGOs, and private sector actors.
Environmental 	<p>Environmental sustainability means that rural water delivery is placed in the wider context of the natural environment. This is demonstrated through implementing an integrated approach to sustainably manage water and waste(-water) flows and resources. The following conditions should be observed:</p> <ul style="list-style-type: none"> • Local government, communities, and the private sector are coordinating and acting to protect natural water sources from pollution and groundwater depletion.
Technological 	<p>Technological sustainability of rural water delivery means that the technology or hardware needed for the services supports good-quality, durable construction of infrastructure and is maintained, repaired, and replaced by local people or reliable local service provider entities. The following conditions should be observed:</p> <ul style="list-style-type: none"> • The type and quality of construction materials used to build rural water supply infrastructure are durable enough to safeguard investments. • Households/communities/service provider entities have the knowledge, resources, and ability to maintain functioning water points or piped systems at the expected level of performance. • Adequate spare parts are available, and individuals or entities tasked with operation and maintenance have the necessary skills.
Social 	<p>Social sustainability of rural water delivery means that the appropriate social conditions and prerequisites are realized to sustain healthy and livable communities. Interventions are demand-driven, inclusive (equity), gender transformative, culturally sensitive, and needs-based. The following conditions should be observed:</p> <ul style="list-style-type: none"> • Women, minorities, and those with special needs have access to water services that accommodate their needs. • Products and services are culturally appropriate.

Financial

SCORING RUBRIC

LOW	MEDIUM	HIGH
Financial Planning		
There is no financial planning for rural water service delivery.	Financial plans exist but fall short of estimates or depend on non-domestic sources.	Multi-year financial plans are in place for domestically sourced financing.
Available Funding		
Funding available does not fully cover either the capital or recurring costs of rural water service delivery.	Funding is available to cover some of the recurring costs of rural water service delivery (e.g., there is insufficient budget for major repairs).	Funding aligns with financial planning and enables full life-cycle costs to be met, especially capital maintenance and post-construction support.

Institutional

SCORING RUBRIC

LOW	MEDIUM	HIGH
Defined Roles and Responsibilities		
Service providers and regulators do not have clearly defined roles and responsibilities for monitoring, regulating, and providing safe and adequate water.	Service providers and regulators have clearly defined roles and responsibilities among entities, however significant gaps or duplications in monitoring, regulating, and providing safe and adequate water exist.	Service providers and regulators have clearly defined roles and responsibilities for monitoring and delivering safe and adequate water. Monitoring and regulation occurs regularly and results are used to make decisions and inform actions.
Staffing Gaps		
Service providers and regulators are unaware of the staffing and technical expertise required to perform service delivery, ongoing water quality monitoring, and sector management.	Service providers and regulators have identified staffing needs, yet gaps remain in the expertise and resources required.	Service providers and regulators have identified and filled staffing gaps.
Accountability		
There are no oversight or accountability mechanisms in place.	There is limited accountability between consumers and providers.	There are effective mechanisms in place for consumers to hold providers and authorities to account.
Local Expertise		
	Technical expertise is provided locally but requires some external support. Limited mechanisms and training programs for institutionalizing knowledge and expertise are in place.	Technical expertise is provided in-country, with adequate mechanisms and training programs for institutionalizing knowledge and expertise in place.

Environmental

SCORING RUBRIC

LOW	MEDIUM	HIGH
Water resources are not managed or protected.	Water resources management has limited effectiveness (e.g., environmental regulations are enforced on an ad-hoc basis).	Water resources are managed effectively for long-term sustainability of water resources. Local authorities have necessary capacity and are appropriately resourced.

Technological

SCORING RUBRIC

LOW	MEDIUM	HIGH
Quality of Construction Materials		
Construction quality of water supply infrastructure is poor.	The type and quality of construction materials may not be sufficient to prevent premature failure of water supply infrastructure.	The type and quality of construction materials are durable enough to ensure the long life of water supply infrastructure when properly maintained.
Frequency of Preventive Maintenance		
Routine preventive maintenance is not performed.	Routine preventive maintenance is occasionally performed (i.e., at least annually).	Mechanics perform routine preventive maintenance (i.e., monthly/weekly).
Access to Spare Parts		
Access to spare parts is limited or not available.	Access to spare parts is adequate, but warehousing remains limited, and the acquisition of spare parts causes delays in service.	Access to spare parts is adequate, and functional warehousing ensures minimal down-time in service delivery.

Social

SCORING RUBRIC

LOW	MEDIUM	HIGH
Women		
Rural water services provide no accommodations for the needs of women.	Rural water services provide some accommodations for the needs of women.	The location and type of rural water services sufficiently accommodate the needs of all community members.
Minority and Disadvantaged Populations		
Rural water services are less accessible by minority and/or disadvantaged populations.	Efforts to extend rural water services to minority and/or disadvantaged populations exist but are not achieving equity.	The location and type of rural water services sufficiently accommodate the needs of all community members.
Consideration for Culture and Religion		
Rural water services and products are not compatible with the religious and cultural norms of the target community.	Rural water services and products are somewhat targeted towards culturally and religiously appropriate and sustainable behaviors and norms, but problems and conflicts still exist.	Rural water services and products are targeted towards culturally and religiously appropriate and sustainable behaviors and norms.

SWS's Vision of Sustainability for Small Town Sanitation Services

 <p>Financial</p>	<p>Financial sustainability means that continuity in the delivery of products and services related to sanitation is assured, because the activities are locally financed (e.g., taxes, local tariffs and fees, local financing) and do not depend on external (foreign) subsidies. The following conditions should be observed:</p> <ul style="list-style-type: none"> Households can access and afford professional repair and are able to manage fecal waste (pit emptying or relocating latrine structures as needed). Households can access and afford to purchase sanitation products and services and perform major repairs or upgrades.
 <p>Institutional</p>	<p>Institutional sustainability means that sanitation services, institutions, policies, and procedures at the local level are in place to support a system to monitor and support households and communities to sustain their sanitation services beyond the initial stage of construction. Users, authorities, and service providers at the local and national levels are clear on their respective roles, tasks, and responsibilities, can fulfill these roles effectively, and are transparent with each other. The following conditions should be observed:</p> <ul style="list-style-type: none"> Local authorities continually monitor and enforce regulations and oversight over sanitation services and the organizations, people, and institutions that provide these services. This occurs free from undue political influence (well-informed consumers and operators, effective system-wide accountability and appropriate sanctions). Structures and institutions exist (government, private sector, NGO) to provide guidance, strategic thinking, and planning for sustaining sanitation services. These institutions can anticipate household sanitation service needs. Within these structures, organizations are aligned and coordinated.
 <p>Environmental</p>	<p>Environmental sustainability means that sanitation services are placed in the wider context of the natural environment. This is demonstrated through an integrated approach to sustainably manage sludge and waste(-water) flows and resources. The following conditions should be observed:</p> <ul style="list-style-type: none"> Local government, communities, and the private sector are coordinating and acting to protect natural water sources from fecal contamination. Effective fecal sludge management measures are in place for on-site sanitation systems (as appropriate).
 <p>Technological</p>	<p>Technological sustainability of sanitation services means that the technology or hardware needed for the services supports good quality, durable construction of latrines and other sanitary facilities. The following conditions should be observed:</p> <ul style="list-style-type: none"> The type and quality of construction materials used to build latrines prevent collapse and overflowing. Households are able to perform regular maintenance to keep the latrine in good working condition (e.g., working toilet seat, intact water seal, functioning vent pipe and wire mesh to keep flies out). The public or private sector offer services for pit emptying, transporting sludge, and proper disposal.
 <p>Social</p>	<p>Social sustainability of sanitation services means that the appropriate social conditions and prerequisites are realized to sustain healthy and livable communities. Interventions are demand-driven, inclusive (equity), gender transformative, culturally sensitive, and needs-based. The following conditions should be observed:</p> <ul style="list-style-type: none"> Ongoing hygiene promotion and behavior change services effectively engage households to create a social norm for latrine use and handwashing and against unhealthy sanitation behaviors.

Financial

SCORING RUBRIC

LOW	MEDIUM	HIGH
Financial Planning		
There is no financial planning for sanitation service delivery.	There is some financial planning to cover some of the recurring costs of sanitation service delivery (e.g., there is insufficient budget for major repairs).	Funding aligns with financial planning and enables full life-cycle costs to be met, especially capital maintenance and post-construction support.
Available Funding		
Households have little to no funding available for purchasing and maintaining sanitation services.	Households have some funding available for purchasing and maintaining sanitation services but it falls short of the life-cycle cost for these systems.	Households have access to adequate funding for purchasing and maintaining sanitation services.
Financing		
Only minimal financing is available for start-up and ongoing operations of private sanitation businesses.	Financing for private sanitation businesses is available but falls short of estimated need or is dependent on non-domestic sources.	Private sanitation businesses have access to locally sourced financing that covers both start-up and ongoing operation costs.

Institutional

SCORING RUBRIC

LOW	MEDIUM	HIGH
Defined Roles and Responsibilities		
Communities, government, and private sanitation businesses do not have clearly defined roles and responsibilities for monitoring and delivering sanitation products and services.	Communities, government, and private sanitation businesses have clearly defined roles and responsibilities for monitoring and delivering sanitation products and services. However, significant gaps or duplications exist among entities.	Communities, government, and private sanitation businesses have clearly defined roles and responsibilities for monitoring and delivering sanitation products and services and work collaboratively to meet the demand of the community.
Local Technical Expertise		
Private sanitation businesses lack the staffing and technical expertise required to perform service delivery.	Private sanitation businesses can provide technical expertise locally but require some external support. Limited mechanisms and training programs for institutionalizing knowledge and expertise are in place.	Private sanitation businesses provide technical expertise in-country, with adequate mechanisms and training programs for institutionalizing knowledge and expertise in place.
Accountability		
There are no oversight or accountability mechanisms in place.	There is limited accountability between consumers and providers.	There are effective mechanisms in place for consumers to hold providers and authorities to account.
Local Government Expertise		
Local government is unaware of or lacks expertise needed to implement, manage, or finance sanitation services.	Local government has identified needs and expertise required to implement, manage, or finance sanitation services but has not fully implemented these services.	Local government can successfully implement, manage, or finance sanitation services.

Environmental

SCORING RUBRIC

LOW	MEDIUM	HIGH
Sludge Disposal Policy		
No policies are in place for the environmentally sound disposal of sludge.	Policies are in place for the environmentally sound disposal of sludge but are not fully implemented.	Sludge is disposed of in an environmentally sound manner.
Latrine Location		
Latrines are built within an unsafe distance to water sources (less than 30 meters) or threaten the health of local communities and ecosystems.	Latrines are still built in unsafe areas.	Latrines are built downhill and at least 30 meters from a water source, and 6 meters from all homes.
Sludge Treatment		
There is no sludge disposal treatment site in place.	There is a sludge disposal treatment site in place.	There is a sludge disposal treatment site in place and liquid waste is treated and reused.

Technological

SCORING RUBRIC

LOW	MEDIUM	HIGH
Quality of Construction Materials		
Construction quality of latrines is poor (e.g., shallow, un-lined pits, use of cheaply made or non-permanent materials).	The type and quality of materials and construction may not be sufficient to prevent latrine collapse or overflow within its expected life-cycle, or to allow for emptying.	The type and quality of materials and construction are durable enough to ensure the long life of latrines when properly maintained.
Access to Equipment		
Access to tools, equipment, parts, and people/businesses is limited or nonexistent.	Access to tools, equipment, parts, and people/businesses is ad hoc, causing delays in service delivery.	Access to tools, equipment, parts, and people/businesses is adequate, ensuring minimal down-time in service delivery.
Pit Emptying Services		
	Pit emptying services are somewhat reliable and/or still employ some unsafe practices.	Pit emptying services are safe and reliable (i.e., frequent enough to prevent overflow and instability).

Social

SCORING RUBRIC

LOW	MEDIUM	HIGH
Social Norms		
Communities lack social norms related to open defecation, latrine use, and handwashing.	Some households and/or family members are ODF and practicing appropriate latrine use and handwashing behaviors.	There are strong community-wide social norms against open defecation and for latrine use and handwashing by all family members.
Consideration for Culture and Religion		
Sanitation services and products are not compatible with the religious and cultural norms of the target community.	Sanitation services and products are somewhat targeted towards culturally and religiously appropriate and sustainable behaviors and norms, but problems and conflicts still exist.	Sanitation services and products are targeted towards culturally and religiously appropriate and sustainable behaviors and norms.
Women, Minority, and Disadvantaged Populations		
Sanitation services provide no accommodations for the needs of women, minority, and/or disadvantaged populations.	Sanitation services provide some accommodations for the needs of women, minority, and/or disadvantaged populations.	Sanitation services sufficiently accommodate the needs of all community members.

ANNEX D: PERFORMANCE INDICATOR REFERENCE SHEETS

USAID requires a Performance Indicator Reference Sheet (PIRS) to be completed for all performance indicators to ensure data quality and consistency. This annex uses the standard USAID template to construct a PIRS for outcome mapping and the sustainability scorecards.²⁷ It also includes annotations to explain the SWS team’s decision-making process. The PIRS clearly defines the data collection methodology for both indicators, and provides a useful reference for any project team, regardless of their funding source.

PERFORMANCE INDICATOR REFERENCE SHEET
Name of Indicator: Average rating for each boundary partner on progress markers for their vision of more sustainable services.
Name of Result Measured: WASH system is strengthened.
Is This a Performance Plan and Report Indicator? No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> , for Reporting Year(s) _____
DESCRIPTION
<p>Precise Definition(s): This indicator measures the average rating of all progress markers for each boundary partner toward their vision of more sustainable services. A “boundary partner” is an individual, group, or organization with whom a project interacts directly and anticipates opportunities for influence.</p> <p>Implementing partners will identify a goal statement for their boundary partner(s). A goal statement is a detailed aspirational statement describing the behaviors, actions, and relationships required for the coalition to improve the sustainability of WASH services within its boundary.</p> <p>A “progress marker” is a pre-defined intermediate outcome or milestone expected of the boundary partners as they are influenced by project interventions toward their vision. Implementing partners will define up to nine progress markers for each boundary partner, classifying these markers into three progress categories:</p> <ul style="list-style-type: none"> • Early positive responses (expect to see); • Active engagement with the intervention (like to see); and • Behaviors associated with achieving the expected outcome (love to see). <p>At least semi-annually, implementing partners will record observed changes in the actions of the boundary partner(s) related to each progress marker. They will rate each progress marker on the degree to which it was achieved or observed during the reporting period (low, medium, high). This indicator is self-scored; however, to defend their rating, implementing partners will provide narrative and supporting documentation (e.g., meeting minutes, interview responses, data from systems analysis).[†] The M&E specialist will regularly review the Performance Indicator Tracking Sheet and work with implementing partners to adjust as needed.</p>
Unit of Measure: Average rating per coalition.
Method of Calculation: The sum of ratings (high = 3, medium = 2, low = 1) for all progress markers for a boundary partner divided by the number of progress markers for that boundary partner.
<p>Disaggregated by:</p> <ul style="list-style-type: none"> • Progress category (expect to see, like to see, love to see).
Rationale or Justification for Indicator (Optional): The information generated by this indicator will be used to monitor and report on achievements linked to strengthening the WASH system. This indicator serves as the logical and operational link between observed changes in how stakeholders perceive and understand the WASH system and actual changes in system outcomes.

²⁷ Refer to the USAID guidance document for a description of the fields used in this template. Available at: <https://www.usaid.gov/sites/default/files/documents/1868/201maf.pdf> (accessed January 3, 2020).

[†] While ratings are used for performance monitoring, the primary value of this data set is the narratives that are recorded for each progress marker. The narratives document changes over time, converting what would otherwise be anecdotal stories into useful evidence for understanding the change process.

PLAN FOR DATA COLLECTION AND ANALYSIS							
Data Collection Method: Implementing partners will record observations and ratings for each progress marker in a reporting form (shared Google Sheet) and input summary data to the Performance Indicator Tracking Sheet on a semi-annual basis. The reporting form will include a description of the observed change and why it is significant, with links to supporting documentation. The M&E specialist will cross-reference the scores with this evidence to ensure the most accurate score was entered.							
Data Source(s): Ratings for each progress marker recorded by implementing partners (e.g., meeting notes, newspaper articles, trip reports).							
Frequency and Timing of Data Acquisition: Data acquisition is rolling, as available. Reported to USAID in October and April through semi-annual progress reports.							
Estimated Cost of Data Acquisition: Minimal costs associated with data entry and upkeep of reporting form (time).							
Individual(s) Responsible: Implementing partner M&E lead.							
Data Analysis: Simple data analysis tools (such as Excel or Google Sheets) will be employed to analyze the data collected and produce data tables to show results by disaggregates.							
DATA QUALITY ISSUES							
Dates of Initial Data Quality Assessment: N/A							
Known Data Limitations: <ul style="list-style-type: none"> • Validity: This measure depends on implementing partners entering scores into a collection instrument without direct oversight. Data could be entered incorrectly by the implementing partners and misrepresent the progress made by a boundary partner toward achieving their vision of more sustainable services. • Reliability: No known issues. • Timeliness: No known issues. • Precision: No known issues. • Integrity: Since progress markers will be reported by implementing partners, there may be a need for independent verification or triangulation of reported observations with other data sets (e.g., meeting notes) if resources allow. Specifically, this verification should look for unintended or possible negative outcomes related to the progress markers, as these might be less likely to be self-reported by implementing partners. 							
Actions Taken or Planned to Address Data Limitations: Supporting documentation will mitigate validity and integrity concerns to a degree.							
Date of Future Data Quality Assessments: USAID to determine.							
TARGETS AND BASELINE ^{††}							
Baseline Timeframe (Optional): The baseline is zero.							
Rationale for Targets (Optional): Targets are estimated for the whole indicator using a rough estimate. These targets are representative of the current project expectations but should be reevaluated and adjusted based on the project work plan and project experience.							
Base Year	Base Data	FY17 Target	FY18 Target	FY19 Target	FY20 Target	FY21 Target	LOP Target
2018	0	N/A	1	1.5	2	2.5	2.5 (final average score, not average life of project score)
CHANGES TO INDICATOR							
Changes to Indicator:							
Other Notes (Optional):							
THIS SHEET LAST UPDATED ON:							

^{††} These targets are illustrative. Project teams should think carefully about the pace of change in their local system and what can feasibly be achieved over the life of the project. At the same time, we recommend that the team calibrate progress markers to balance feasibility and aspiration.

PERFORMANCE INDICATOR REFERENCE SHEET
Name of Indicator: Percentage of project areas that demonstrate an increased likelihood of services being sustained. ^{†††}
Name of Result Measured: Increased likelihood of services being sustained.
Is This a Performance Plan and Report Indicator? No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> , for Reporting Year(s) _____
DESCRIPTION
<p>Precise Definition(s): This indicator will measure the percentage of project areas that demonstrate an increased likelihood of services being sustained. Project areas are either small towns, districts, or a country (national level).</p> <p>“Likelihood of sustainability” is defined as whether proxy indicators of sustainable WASH service delivery are present. The project will use the WASH Alliance’s FIETS model for measuring this indicator. Based on this model, the project will track the following conditions of sustainability:</p> <ul style="list-style-type: none"> • <i>Financial:</i> Financial availability, local funding, and cost recovery. • <i>Institutional:</i> Fully staffed and technically competent service providers, enforced regulations, support functions by service authority. • <i>Environmental:</i> Protection of surface and groundwater supplies, safe disposal of sewage. • <i>Technological:</i> Reliability and accessibility of WASH services, with access to spare parts and functional warehousing. • <i>Social:</i> Appropriate social conditions and prerequisites, as they relate to WASH services. <p>The project will use a scorecard to group these indicators and calculate their aggregate value. “Demonstrating” refers to scores attributed to each indicator based on an annual assessment conducted by implementing partners. An increase in numerical value is considered an improvement.</p>
Unit of Measure: Percent of project areas.
<p>Method of Calculation: A scorecard will be used to group a set of indicators measuring different criteria for sustainability. Each indicator is assigned a value ranking of low, medium, or high based on pre-defined criteria. Values are given a numeric score (low = 1, medium = 2, and high = 3). To determine the likelihood of sustainability, implementing partners will calculate an aggregate score composed of an unweighted average of all the indicators.</p> <p>If the aggregate score increases by any amount, then this is considered an improvement in the likelihood of services being sustained.</p> <p>$(\# \text{ of project areas demonstrating an improvement in the likelihood of services being sustained} / \# \text{ of project areas}) \times 100$</p>
<p>Disaggregated by:</p> <ul style="list-style-type: none"> • Geographic area (small town, district, or national).
Rationale or Justification for Indicator (Optional):
PLAN FOR DATA COLLECTION AND ANALYSIS
<p>Data Collection Method: Implementing partners will use a standardized scorecard for their respective sub-sector (rural water or small town sanitation) to score metrics on components related to the financial, institutional, environmental, technical, and social measures of sustainability. The most appropriate rating for each indicator will be selected based on definitions provided in the worksheet.</p> <p>For example, the criteria attributed to <i>financial</i> for the rural water sub-sector is as follows:</p> <ul style="list-style-type: none"> • Low: There is no financial planning for rural water service delivery. Funding available does not fully cover either the capital or recurring costs of rural water service delivery. • Medium: Financial plans exist but fall short of estimates or depend on non-domestic sources. Funding is available to cover some of the recurring costs of rural water service delivery (e.g., there is insufficient budget for major repairs). • High: Multi-year financial plans are in place for domestically sourced financing. Funding aligns with financial planning and enables full life-cycle costs to be met, especially capital maintenance and post-construction support. <p>Implementing partners will perform this assessment on an annual basis using available data (e.g., results of analyses) to inform their ratings and may choose to elicit stakeholder input. Data used to inform selected ratings will be referenced in the worksheet.</p> <p>Once each indicator is ranked, an aggregate score will be determined, and implementing partners will input data to the Performance Indicator Tracking Sheet. The M&E specialist will cross-reference the scores with supporting evidence to ensure the most accurate score was entered.</p>

^{†††} SWS uses “project areas” as a generic term because the project is working at different scales (i.e., multiple countries and administrative units). For project teams working at similar scales, this generic term can be replaced with something more specific, such as “districts.”

Data Source(s): Ratings recorded by implementing partners with references (e.g., budget allocations, household survey responses, policy documents).														
Frequency and Timing of Data Acquisition: Data will be collected and reported on annually.														
Estimated Cost of Data Acquisition: Time burden depends on rigor and methods determined by teams.														
Individual(s) Responsible: Implementing partner M&E lead.														
Data Analysis: Simple data analysis tools (such as Excel or Google Sheets) will be employed to analyze the data collected and produce data tables to show results by disaggregates.														
DATA QUALITY ISSUES														
Dates of Initial Data Quality Assessment: N/A														
Known Data Limitations and Significance: <ul style="list-style-type: none"> • Validity: No known issues. • Reliability: Sub-indicators in the scorecard will be assessed based on the best available data, which is likely to fluctuate from year to year as the number and rigor of systems analyses will vary. To mitigate this, implementing partners will be required to note the data sources for each sub-indicator. • Timeliness: Increasing the likelihood of sustainability is a long process, and several years of program implementation may be necessary to begin to observe actual changes. • Precision: No known issues. • Integrity: No known issues. 														
Actions Taken or Planned to Address Data Limitations: To mitigate reliability concerns, implementing partners will be required to note the data sources for each sub-indicator.														
Date of Future Data Quality Assessments: USAID to determine.														
TARGETS AND BASELINE														
Baseline Timeframe (Optional): The baseline will be collected in FY 2018.														
Rationale for Targets (Optional):														
<table border="1"> <thead> <tr> <th>Base Year</th> <th>Base Data</th> <th>FY18 Target</th> <th>FY19 Target</th> <th>FY20 Target</th> <th>FY21 Target</th> <th>LOP Target</th> </tr> </thead> <tbody> <tr> <td>2018</td> <td></td> <td>Baseline</td> <td>50%</td> <td>75%</td> <td>100%</td> <td>100%</td> </tr> </tbody> </table>	Base Year	Base Data	FY18 Target	FY19 Target	FY20 Target	FY21 Target	LOP Target	2018		Baseline	50%	75%	100%	100%
Base Year	Base Data	FY18 Target	FY19 Target	FY20 Target	FY21 Target	LOP Target								
2018		Baseline	50%	75%	100%	100%								
CHANGES TO INDICATOR														
Changes to Indicator:														
Other Notes (Optional):														
THIS SHEET LAST UPDATED ON:														

ANNEX E: OUTCOME MAPPING REPORTING FORM WITH SAMPLE ENTRY

Progress Marker

Coalition members report on key performance indicators for rural water points in the county.

Level of Progression

Based on the outcomes you have recorded, please enter an “X” under the appropriate choice. Your selection should reflect how far along the boundary partner is in achieving the vision of the progress marker. A selection of “high” indicates the boundary partner’s actions or behaviors as they relate to this progress marker are sufficient to achieve the vision.

Low	Medium	High
X		

Summary of Main Changes and SWS Contribution

Please describe all changes observed in the boundary partner for this progress marker during the reporting period. Who did or said what, when, where, and why is this important?

Sub-county water officers continue to report on the status of water services in their jurisdiction at quarterly WASH meetings. However, there are no standard indicators, and most sub-county water officers only report on the status of construction projects. In an April 2018 meeting, participants identified the need for standardized reporting at the sub-county level — including key performance indicators to track coverage, distance to the source, and functionality — to update actors on progress and enable comparison or aggregation of data. Participants formed a task group to lead the development of key performance indicators and a standard reporting template (presentation and document) for sub-county water officers to use. The task group will present the draft indicators and template at the next meeting.

This is significant because it represents the first concrete step toward standardized reporting. The information collected through the standardized reporting template can be disaggregated by wards within a sub-county to see which areas are more disadvantaged. People can compare sub-counties against each other, track progress between quarters, and ask questions around “Why does this place have more working water points?” or “Why are more resources going to these areas?” We think access to this type of information will lead people to ask questions on prioritization and investment. It will also enable them to hold decision makers to account and push them to change their approach to allocate resources based on need, not based on political decisions.

Describe how SWS may have contributed to the change. What events or tools were used, and how were they effective? Use footnotes to cite your sources and provide links to additional documentation in the data library.

At the WASH coalition meeting, SWS contributed to this progress by facilitating discussions on what needs to change to achieve rural water sustainability. SWS will continue to facilitate discussion on standardized reporting to elicit feedback from the wider group for improvement and adoption of the template and to align it with ongoing database development work.

ANNEX F: SCORECARD REPORTING FORM WITH SAMPLE ENTRY

Technological

SCORING RUBRIC

LOW	MEDIUM	HIGH
Quality of Construction Materials		
Construction quality of water supply infrastructure is poor.	The type and quality of construction materials may not be sufficient to prevent premature failure of water supply infrastructure.	The type and quality of construction materials are durable enough to ensure the long life of water supply infrastructure when properly maintained.
Frequency of Preventive Maintenance		
Routine preventive maintenance is not performed.	Routine preventive maintenance is occasionally performed (i.e., at least annually).	Mechanics perform routine preventive maintenance (i.e., monthly/weekly).
Access to Spare Parts		
Access to spare parts is limited or not available.	Access to spare parts is adequate, but warehousing remains limited, and the acquisition of spare parts causes delays in service.	Access to spare parts is adequate, and functional warehousing ensures minimal down-time in service delivery.

Technological Rating

Medium

Type and Quality of Construction Materials

The durability of construction materials is moderate, and incidences of premature failure are often recorded. An audit of county water infrastructure in 2017 indicated one in two piped schemes had experienced at least one major failure. Further, there is a gradual adoption of energy-efficient technologies (i.e., solar-powered water pumping). The water audit documented such systems in 23 percent of piped schemes while the remainder are generator powered (53 percent) or grid powered (13 percent).

Routine and Preventive Maintenance

Across most of the county, routine and preventive maintenance of water supply infrastructure is regularly performed for straightforward tasks and less frequently for complex tasks, such as maintenance of mechanical equipment. In this regard, the water audit results show four in five schemes regularly carry out at least one preventive maintenance task. Commonly performed tasks are pipeline inspection for bursts or leaks (61 percent) and storage tank inspections (63 percent). Fewer schemes do the tasks of pump servicing (14 percent), solar equipment cleaning (8 percent), and generator servicing (21 percent).

In one sub-county, a local enterprise and service provider contracts with communities to cover regular maintenance of equipment. Eighty-two percent of repairs were done within 24 hours after the report of a fault or breakdown.

Access to Spare Parts

Across most of the county, the government is in charge of maintenance. At the community level, nine in ten piped schemes do not store spare parts for regular repair and maintenance, and those that do typically stock pipes. The county government is the most active entity involved in fixing breakdowns in 32 percent of the rural piped schemes, followed by local technicians in 30 percent of the schemes. Government access to spare parts is hampered by lengthy procurement processes, unwieldy procedures for expenditure approval, and insufficient or delayed budgets. However, a local enterprise and service provider has a well-managed stock of spare parts to ensure minimal downtime for repairs.

Conclusion

Given the above mix, the overall rating for the whole county is medium. A local enterprise and service provider models proactive maintenance in one sub-county. SWVS will report on the wider take-up of this model, as it may improve the likelihood of sustainability in the county.

ANNEX G: AFTER-ACTION REVIEW TEMPLATE

Name of the event:

Date of the event:

Participants in after-action review:

Date of after-action review:

<p>What were the intended results?</p>	<p>What were the actual results?</p>
<p>What accounts for differences between intended and actual results?</p>	<p>What did we learn? (Items to sustain and items to change)</p>

ANNEX H: CHANGELOG TEMPLATE

Date:

Coalition:

Sources of information:

Relevant progress marker:

Observations: Please briefly summarize the change in the coalition partner: describe **who** changed, **what** changed in their behavior, relationships, activities, or actions, **when**, and **where**. Note that changes can be positive, negative, or mixed impact.

Origins: What SWS actions contributed to the observed changes? How do you know the outcome was a result — partially or totally, directly or indirectly, intentionally or not — of SWS activities?

Significance: Briefly explain why the outcome is important. The challenge is to contextualize the outcome so a reader without the country and topical expertise can appreciate why this change in a social actor is significant.

(To report on additional progress markers, please copy the questions above and paste them below.)

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About the Sustainable WASH Systems Learning Partnership:

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For more information, visit www.globalwaters.org/SWS, or contact Dan Hollander (Daniel.Hollander@colorado.edu) or Elizabeth Jordan (EJordan@usaid.gov).

