



# Keep the Water Flowing

**Resiliency of the Safe Water Enterprise Model**

**August 2021**

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Understanding the Impact of the  
COVID-19 Pandemic on Safe Water  
Enterprises through a Common  
Financial and Monitoring and  
Evaluation Framework

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*The Safe Water Enterprise Community of Practice (CoP) captures the collaborative efforts of seven implementers working to increase the prominence of SWEs to attract more financing to the sector, improve sector policies and strategies for a more favorable environment, strengthen best practices through information exchange among the members, and ultimately increase the impact of SWEs.*

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## Executive Summary

The COVID-19 pandemic tested governments, institutions, and markets around the world. Safe water enterprises (SWEs) were no exception to this rule. The recent public health crisis posed threats to their ability to continue service and deliver water when it was most needed. This crisis called for unprecedented collaboration to gather and disseminate information and resources. It required implementers and their partners to act quickly by responding accordingly and redirecting capital where it could make the most impact. This report serves as another mechanism of collaboration to synthesize the response and financial impact of the pandemic in order to share knowledge and develop common tools and frameworks for response and impact assessment.

### Safe Water Enterprise COVID-19 Strategy

All implementers that participated in this research cited continued and expanded service as part of their COVID-19 response strategy. Recognizing that safe water is a frontline defense against infection, the necessity of SWE services became even more evident. Implementers reacted quickly to develop and implement procedures to limit infection among their customers, partners, and staff. Overwhelmingly, SWEs cited their existing network of partners, governments, and funders as an asset in attaining these goals and overcoming the challenges of the pandemic. Our strategy section will detail the actions SWEs took in response to this crisis through a three-objective framework:

1. Maximizing the benefit of services and operations by maintaining or increasing access to safe water as a frontline defense against infection and a resource for healthcare professionals
2. Minimizing harm to customers and employees through capacity building, procedures, resources, and communication
3. Utilizing partnerships with funders, governments, and other partners to achieve and enhance objectives 1 and 2

### Financial Impact and Assessment

The implementers that participated in this research were not only able to keep the water flowing but expanded access to safe water as well. Revenue increases across all participating SWEs capture this effort. Collection efficiency was a challenge for some in countries where governments placed restrictions on revenue collection for water. Overall, SWEs were grateful for their partnerships with funders that covered any lost revenue or incremental costs for COVID-19 expenditures like cleaning, information campaigns, and handwashing stations.

### Lessons Learned and Future Planning

This research informed the development of a common M&E framework and Pandemic Response Stakeholder Checklist, which provide a starting point for SWE strategy in future public health crises of infectious disease. Our SWOT analysis also provides insights into the strengths of the SWE model, which primed implementers for effective and rapid response. SWE weaknesses identify areas where implementers can prepare for anticipated challenges.

Overall, findings from this report indicate the resilience of SWEs is strong.

- The SWE model is resilient. Implementers were able to continue normal operations and expand access to safe water during the pandemic.
- Field teams rose to the challenge of keeping stations running despite travel restrictions and resource constraints. The SWE model of centralized management and maintenance is not only a solution for rural water supply failure but also a resource for problem-solving in times of extraordinary difficulty.
- Local organizations and stakeholders kept stations safe and running when field teams did not have access. Through local capacity and network building, SWEs invest in valuable resources that increase the resilience of their model.
- Revenue diversification is an asset for SWEs. Many SWEs cited their access to funders as a major driver to achieve objectives to maximize benefit and minimize harm. This access provided a tool for swift and broad action.
- Transition to digital is a matter of efficiency and also of safety. Digital data collection and review were instrumental in limiting infection and overcoming the challenges of travel bans.

SWEs not only proved to be resilient through the COVID-19 pandemic but took an active role as part of the solution to limit COVID-19 infection.



Photo by Water Mission

## Introduction

On March 11, 2020, the World Health Organization (WHO) declared COVID-19 could be characterized as a pandemic. Safe water was named a frontline defense against infection of the virus through frequent and thorough handwashing. The importance and necessity of safe water became more prominent, yet water and sanitation providers (WSPs) were likely to incur additional costs and challenges due to increased supply demands, operational constraints, and health and safety requirements. Safe water enterprises (SWEs), in particular, faced great challenges as they operate in low-income communities with resource constraints.

This crisis tested the resiliency<sup>1</sup> of SWEs to maintain and increase access to safe water throughout a global public health crisis. This provides an opportunity for implementers to learn from each other and identify the inherent strengths and weaknesses of the SWE model. Sharing and documenting experiences can help strengthen the SWE proposition, prepare implementers for a crisis, and provide tools to maintain access to safe water even in times of great difficulty.

This report uses qualitative and quantitative research to analyze the COVID-19 response and strategy of six SWEs. Participating organizations continued and expanded service through the crisis. They were quick to act and utilize partnerships, resources, and information to sustain access to safe water and minimize infection among their staff and customers. SWEs have not only demonstrated their ability to persist through a global health crisis but revealed that certain characteristics of the SWE model make implementers primed for resiliency. This finding was especially evidenced through the advantages of local capacity building, remote monitoring capabilities, and contactless dispensing through digital mobile money.

This research informed the development of a common framework to analyze the financial impact on SWEs, document best practices, and develop a common **M&E** framework for crises due to infectious disease. The research also highlighted the value of continued cooperation among SWEs and engagement with other partners in the water sector and beyond.

*The Safe Water Enterprise Community of Practice (CoP) captures the collaborative efforts of seven implementers working to increase the prominence of SWEs to attract more financing to the sector, improve sector policies and strategies for a more favorable environment, strengthen best practices through information exchange among the members, and ultimately increase the impact of SWEs.*

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<sup>1</sup> The United Nations defines resilience as “the ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions.” United Nations Office for Disaster Risk Reduction, UNISDR Terminology and Disaster Risk Reduction (Geneva, 2009)

## Methodology

This report employs several research methodologies to capture the impact of the COVID-19 pandemic on SWEs. The data collected includes quantitative data on revenues and costs as well as qualitative data from an online survey for SWEs with eight (8) open-ended questions related to finances, operations, monitoring and evaluation, health and safety, and policy. A total of six (6) SWEs participated in this research.

Table 1 Research Participants

Implementer	Countries Represented
Safe Water Network	Ghana, India
Untapped dloHaiti	Haiti
Water4	Ghana
Water for Good	Central African Republic
Water for People	Uganda
Water Mission	Honduras

### COVID Financial Impact Assessment Tool for Water and Sanitation

In May 2020, the World Bank Group released the COVID Financial Impact Assessment Tool for Water and Sanitation (Appendix 1), a financial planning tool to quantify the financial impact on WSPs. The World Bank created the tool in response to the COVID-19 pandemic, which was expected to place substantial strain on WSPs in emerging markets due to the use of handwashing as a frontline defense against infection. WSPs were likely to face additional challenges such as increased variable costs, compliance with public mandates for free water, inability for households to cover water bills due to economic strain, the constraints of limited-service delivery and coverage, and debt service pressure. The COVID Financial Impact Assessment Tool provides a common framework to capture the financial impact

of these challenges and provides an evidence base for increasing funding to WSPs in times of a public health crisis if necessary.

The framework includes a Revenue and Cost Build Up, which requires operational and financial inputs for a full year of post-pandemic data. This information is then rolled up into the COVID Impact Assessment, which provides an Income Statement, Cash Flow Statement, and itemized COVID Capex Investments. The output creates a comparison between a selected month in the previous year to each month in the post-pandemic period.

The COVID Financial Impact Assessment Tool provided SWEs an opportunity to demonstrate alignment with a broader selection of WSPs and the evaluation practices of international finance institutions. The CoP collaborated with the World Bank Group in February of 2021 to adjust the framework to include additional revenue channels pertinent to SWEs. The tool was updated to include hand pumps and water kiosks as it already included individual piped connections. The tool was also updated to compare shorter time frames to a year-on-year average of the same time frame from the previous year. This adjustment is specifically helpful to SWEs because they operate in environments where data collection is difficult and may take more time to collect and review. Many SWEs will be unable to produce a full year of reviewed and validated data at this early stage. SWEs also operate in areas with seasonality, which is why it is preferential to compare to an average of the reporting period rather than a single month.

Updates to the COVID Financial Impact Assessment Tool for Water and Sanitation can be found in Appendix 2.





Photo by Water Mission

## Thematic Analysis of Qualitative Survey

The CoP launched a qualitative survey, through which the team collected data from six (6) CoP members. The survey was launched on March 15, 2021, and closed on March 31, 2021. A full list of the survey questions can be found in Appendix 3.

Patterns in the data were identified using thematic analysis. Survey responses were coded using a reflexive approach that fell within themes of financial and M&E reporting. The codebook can be found in Appendix 4. Implementers also provided documentation of a COVID-19 strategy and responded to follow-up questions.

## Quota Sampling

The representative countries were selected based on specific criteria to incorporate a variety of geographic locations and service-delivery types. The selection of SWEs incorporates models with water kiosks, hand

pumps, and piped connections. We define these model types as follows:

- **Water Kiosk** - Central station in a community where water is provided through a standpipe. Water is paid for in designated increments. Station and treatment technology is monitored by a station operator.
- **Hand Pump** - Manually operated pump shared by a community. Communities pay per visit.
- **Piped Connection** – Private connection from a central station to a household, commercial business, or institution. Customers pay in designated increments typically with digital transactions.

Each implementer provided data from one or two countries across different regions of the world, including Central America, the Caribbean, East Asia, West Africa, East Africa, and Central Africa.



## COVID-19 Strategy

CoP contributors provided their strategy for addressing the COVID-19 pandemic. While each strategy was different, elements from all six implementers can be mapped to three objectives:

1. Maximizing the benefit of services and operations by maintaining or increasing access to safe water as a frontline defense against infection and a resource for healthcare professionals
2. Minimizing harm to customers and employees through capacity building, procedures, resources, and communication
3. Utilizing partnerships with funders, governments, and other partners to achieve and enhance objectives 1 and 2

Table 2 SWE COVID-19 Strategy Objectives

Maximizing Benefit
<ul style="list-style-type: none"> <li>• Continue normal program work and operations</li> <li>• Strengthen quality control measures</li> <li>• Employ technology and creative solutions to adapt to travel restrictions</li> <li>• Ensure continuous and sufficient safe water supply to healthcare facilities</li> <li>• Expand access particularly to communities that may be especially vulnerable</li> <li>• Respond to COVID-19-specific needs and requests</li> </ul>
Minimizing Harm
<ul style="list-style-type: none"> <li>• Establish and enforce procedures for social distancing such as limited gatherings, remote working arrangements, and quarantine mandates</li> <li>• Establish communication protocols and point people for managing information on security, health and safety, economic, and operational impacts of the pandemic</li> <li>• Provide training related to hygiene and risk mitigation</li> <li>• Provide resources for safety and disinfection such as masks, soap, hand sanitizer, single-use cleaning products, and handwashing stations</li> <li>• Disseminate information on established procedures, guidelines for disinfection, handwashing practices, social distancing norms, vaccine awareness and safety, and other health and safety information</li> <li>• Practice data minimization by reevaluating M&amp;E strategy; if necessary, adjust metrics to critical data only</li> <li>• Disseminate information in multiple languages if necessary</li> <li>• Disseminate information in multiple formats such as posters, training, and videos</li> <li>• Use digital payments to reduce the spread of infection</li> <li>• Routine temperature checks for field officers and at stations</li> </ul>
Utilizing Partnerships
<ul style="list-style-type: none"> <li>• Raise funding to cover increased expenses or revenue losses due to COVID-19 strategy or as a consequence of the pandemic and government response</li> <li>• Incorporate crisis response into organization budget for unrestricted funds</li> <li>• Share information with other implementers</li> <li>• Collaborate with governments to provide feedback on pandemic-related policies, share best practices and training, comply with government regulation, secure necessary clearance for travel restrictions, and carry out government-led health and safety programs</li> <li>• Engage local monitoring agencies to enforce health and safety procedures</li> <li>• Engage local administration for technical support</li> <li>• Seek opportunities with partners to increase delivery and quality of service and minimize harm to customers and employees</li> </ul>

## Maximizing Benefit

As the spread of COVID-19 grew, nations all around the world issued travel bans and stay-at-home orders, which impacted the ability of implementers to maintain service and operations as usual. International supply chains were interrupted, which increased lead times on orders and prevented critical materials from entering the countries of operation. These impediments halted new construction projects and upgrades to pumping systems. In some cases, this disruption delayed repairs when parts were not available or suppliers were required to shut down if they did not qualify as essential businesses. Customs and compliance offices could be closed. Expense and order processing slowed. Travel restrictions also threatened the reliability of stations as they prevented access to maintenance teams. In some cases, implementers were unable to collect routine data for monitoring and evaluation.

These challenges forced implementers to pivot and swiftly develop and execute new operational policies. Implementers relied on a local network of partners and staff to enforce health and safety procedures, address repairs, and collect information. The success of this strategy is a testament to the SWE model, not only to provide safe water but to establish local networks and empower communities to support station management. As one implementer stated, “We had a 10% revenue increase in 2020 over 2019 due to an 11% increase in volumes from the 330 Water ATMs, a testimony to our operation’s resilience. Our social entrepreneurs and self-help groups thrived and continued to make water available to the users at an affordable price during the COVID Pandemic crises with less than 2% downtime” (Safe Water Network India, Survey Response, March 24, 2021). Implementers turned to technology as a tool to limit person-to-person contact and overcome the chal-



Photo by Water Mission

lenges of travel bans. Field service teams relied on messaging services to provide advice and guidance for repairs. Some implementers already had existing technical infrastructure which allowed them to accept digital transactions and conduct virtual audits of the treatment technology. Other implementers used the crisis as an opportunity to pilot new technologies which proved beneficial enough to adopt across operations: “Water Mission took this opportunity to pilot mobile-based data collection methods to monitor its additional activities undertaken due to COVID-19. This included progress on handwashing station installation, adherence to standards months after these installations, as well as more general community education initiatives. The positive experience among field-level employees as well as program managers prompted Water Mission to continue investing in expanding the application of mobile-based data collection to its broader operation” (Water Mission, Survey Response, March 26, 2021).

Implementers also made it a priority to continue the expansion of safe water and pay particular attention to vulnerable populations and healthcare facilities. Overwhelmingly, implementers considered expansion and quality control to be a top priority while the role of safe water in health and safety emerged as an essential tool to limit infection.

## Minimizing Harm

Safe water enterprises modified their operating practices to keep their employees and customers safe. To accomplish this objective, they aggregated the information and resources necessary to limit infection. Then they developed procedures to limit infection through social distancing, health and safety information, personal protective equipment (PPE), and hygiene products. Next, they implemented and enforced procedures and disseminated information and resources. Last, they monitored progress and created an information feedback loop to ensure that procedures are effective and sufficient.

SWEs implemented social distancing protocols by limiting gatherings, requiring customers and employees to stand six feet apart, enforcing quarantine mandates for those who fell ill, pausing in-person evaluations, and transitioning to remote work for eligible roles. Implementers moved quickly to collaborate with governments and secure permits to allow field staff to travel during lockdowns, while also instituting health and safety guidelines to protect the field team. When necessary, SWEs provided their work-from-home staff with stipends for home office supplies, verified health insurance of all staff, and reimbursed vaccination costs. Digital payments also reduced person-to-person contact. Safe Water Network India was able to “leverage existing payment platforms like UPI and Paytm to increase digital collections from 25% to 75%.”

Implementers provided information to their staff and communities to limit infection. They used multiple languages when necessary and employed multiple formats such as posters, videos, and hygiene training. Information was disseminated through an established network with key point people who would both deliver communications and report back on

progress. Partnerships with other implementers were useful in expediting this process: “We prioritized the continuity of essential operations while minimizing infection risk to technical staff and communities, with input from partners (so far we have benefited from our partnerships with UNICEF, World Vision, Safe Water Network, and Water Mission). Water Mission in particular created and shared water user-facing materials in multiple languages” (Water for Good, Survey Response, March 17, 2021).

Water Mission restricted data collection to critical data only, which led them to revise their M&E framework and focus on “right-fit” data. This approach led to greater efficiencies and pushed the organization to learn more from fewer metrics. While this strategy was borne from crisis response, it has implications for standard M&E practice going forward.

## Utilizing Partnerships

Minimizing infection also required resources such as handwashing stations, soap, PPE, and thermometers for regular temperature checks. SWEs benefited from an existing network of generous donors to secure these resources and expand other programs: “Donor funding to address COVID-19 risks was most readily available for safe water connections to HCFs and handwashing stations in communities. Those funds, as well as our existing partnerships with local government, drove the depth and breadth of our response strategy in Africa” (Water4, Survey Response, March 23, 2021). Funding partners provided a safety net for SWEs that required incremental costs or experienced lost revenue. Donors were instrumental in increasing access to safe water where and when it was most needed.

SWEs benefited from a wide network of key stakeholders. Relationships within the communities were essential in keeping stations running and following health





Photo by Water for Good

and safety procedures. Governments also played a role in collaborating with SWEs to spread information and resources. In some cases, governments played a role in expanding access through partnerships with SWEs: “In Tanzania, the national government prioritized and partnered with Water Mission in installing handwashing stations throughout public spaces such as health care facilities, prisons, transportation hubs, and markets. This made it easier for Water Mission to operationalize quickly throughout the areas of impact” (Water Mission, Survey Response, March 26, 2021).

Some implementers experienced a shortfall in donor funding in the beginning of the pandemic as individuals and corporations limited funding due to economic uncertainty. Even at later stages, corporate and government aid was concentrated in COVID-19 relief with broader objectives in healthcare. Water for Good saw

a 30% decrease in individual donor funding in March and April. While the organization remained in good standing, the pandemic prompted a reevaluation of the way they use unrestricted funding to prepare the organization for future public health crises. Allocating a portion of unrestricted funding to crisis response not only increases the resiliency of an SWE but also leads to overall efficiencies in expenses like reducing unnecessary travel: “We cut the 2020 budget overall by 24%. All cuts and identified limits to those cuts were intended to allow us to remain committed to the people of [The Central African Republic] and continue to provide life-saving, cost-effective, essential water services” (Water for Good, Survey Response, March 17, 2021). To make this change, Water for Good reduced projects without a clear funding path, cut administrative expenses such as salaries for the executive team, and shifted to virtual events and engagements.

## Financial Impact of COVID-19 Pandemic on Selected SWEs

The analysis on the financial impact of COVID-19 on SWEs compares data between a pre-COVID period from Apr-Dec in 2019 to a post-COVID period from Apr-Dec in 2020. A period of nine months was selected to be inclusive of more implementers. Many SWEs face challenges with data collection and validation and data from Q1 of 2021 was not available for this report. The analysis evaluated a year-on-year comparison rather than a pre-post comparison because seasonality can skew the data.

The COVID Financial Impact Assessment Tool provides three outputs for this analysis. First is the Income Statement for revenue, which details the anticipated revenue from piped connections, hand pumps, and water kiosks. Second is the Income Statement for operating costs. Expenses were broken down into six different cost categories: 1) salaries for station staff, 2) electricity, 3) chemicals, 4) maintenance and repairs, 5) administration, and 6) all other costs. The Cash Flow Statement shows the impact of collection efficiency. A sample of the assessment can be found in Appendix 1. We used the assessments to tally the absolute difference between each revenue and expense category for each implementer. We then converted this difference to a percent change and compared the financial impact of all seven country operations, which can be found in Table 3. The Income Statement includes all anticipated revenue based on the requested price and volume. The impact of lower collection rates can be found in the Cash Flow Statement. The table shows the positive or negative difference between the pre-COVID and post-COVID reporting periods for each indicator. While many SWEs conduct financial and operational reporting differently, this format allows for the comparison of trends by looking at changes within each organization.

Our analysis showed that there was no major impact on expenses for implementers, except in cases where production increased significantly due to free water mandates which made variable costs go up. Total revenues increased for all implementers, an indicator that SWEs were able to persevere through the pandemic and either keep producing or expand. Collection efficiency did decrease for those implementers impacted by government policy that restricted the ability to collect revenues.



Table 3 details the financial impact of all seven country operations. The impact was calculated through the assessment and then converted to a percent change. The Income Statement includes all anticipated revenue based on the requested price and volume. The impact of lower collection rates can be found in the Cash Flow Statement. The table shows the positive or negative difference between the pre-COVID and post-COVID reporting periods for each indicator. While many SWEs conduct financial and operational reporting differently, this format allows for the comparison of trends by looking at changes within each organization.

Table 3 Financial Impact on SWE Revenue

	Indicates that this metric increased YoY from April - December 2019 to 2020						
	Indicates that this metric decreased YoY from April - December 2019 to 2020						
	Financial Impact Δ April - December 2019 to 2020						
	Uganda	Ghana - SWN	Ghana – Water 4	Honduras <sup>i</sup>	Central African Republic	India	Haiti
<b>INCOME STATEMENT - REVENUES</b>							
<b>Connection Revenue</b>							
Billed Revenue from Water Sales (million)	33%	-12%	735%	100%	NA	NA	NA
<b>New Connection Revenue</b>	79%	1126% <sup>ii</sup>	40%	NA	NA	NA	NA
<b>Kiosk Revenue</b>	28%	47%	301%	-25%	NA	6%	19%
<b>Hand Pump Revenue</b>	NA	NA	NA	NA	39%	NA	NA
<b>Other revenue (please specify, if applicable)</b>	NA	108% <sup>iii</sup>	NA	NA	NA	NA	NA
<b>TOTAL REVENUE Billed (million)</b>	38%	58%	266%	5%	39%	6%	19%
<b>INCOME STATEMENT - OPERATING COSTS</b>							
Water Operating Salaries	4%	6%	55%	-21% <sup>iv</sup>	35%	11%	78%
Water Production Electricity Cost	NA	29%	NA	NA	NA	0%	240%
Chemical Treatment	NA	38%	86%	NA	NA	10%	0%
Maintenance & Repairs	47%	12%	73%	NA	-12%	10%	343%
Administration	40%	NA	NA	NA	NA	-2% <sup>v</sup>	-59% <sup>vi</sup>
Other Water Operating Costs	-46% <sup>vii</sup>	26%	NA	-93%	-26%	-8%	93%
<b>WATER SUPPLY OPERATING COSTS</b>	-8%	22%	60%	-35%	-10%	6%	3%
<b>CASH FLOW STATEMENT</b>							
Connected: Revenue collection efficiency (%)	-25%	-83%	-83%	NA	NA	NA	NA
Kiosks: Revenue collection efficiency (%)	-6%	-57%	-77%	NA	NA	0%	3%
Hand Pumps: Revenue collection efficiency (%)	NA	NA	NA	NA	0%	NA	NA
Actual Revenue Collected (kiosks & Connected) (million)	-10%	-74%	-36%	5%	75%	6%	21%
<b>OPEX GAP CATEGORY<sup>viii</sup></b>	Increased Positive Surplus	Increased OpEx Gap	Increased OpEx Gap	Increased Positive Surplus	Closed OpEx Gap	Closed OpEx Gap <sup>ix</sup>	Closed OpEx Gap

#### Table Notes

i Compares different sets of stations from each reporting period. All stations are in small, rural communities. Data was cleaned to remove outliers or inconsistencies but some differences will remain.

ii Started piped connection program, which increased piped connections by 167%.

iii Revenue collected from arrears for piped connection customers.

iv The comparison station in the pre-COVID period had more stations resulting in lower overall salaries in the post-period.

iv Several sites transitioned to franchises, which lowered management expenses (-59%) overall.

v Administration captures the Entrepreneur Return, which is the percentage of revenue that social entrepreneurs take home.

vii Stations ran on solar power but relied heavily on fuel in 2019 due to technical issues. Fuel costs decreased (-46%) once these issues were addressed leading to overall lower expenses (-8%).

viii Opex Gap represents the collected revenue after station expenses. Increased Positive Surplus means that there is enough revenue to cover station expenses and some surplus for long-term or overhead-level expenses. Closed OpEx Gap means that there is less revenue than station expenses, but the revenue covers a higher ratio of station expenses than the previous reporting period. Increased OpEx Gap means that there is less revenue than station opex and revenue covers a smaller portion of station expenses.

ix This calculation is made with additional station operations and management expenses that aren't reflected in the other cost categories.

## Revenue and Collection Efficiency

Overall, volume and anticipated revenue increased for all implementers, ranging from a 5% increase for Water Mission Honduras to a 266% increase for Water4 Ghana. This result is a testament to the resiliency of SWEs to continue and expand service through the pandemic. New Connection Revenue also increased for those who offer this service, which could indicate a higher demand for on-premise safe water. However, this trend could also be due to other factors like planned projects or an ongoing trend for preference for piped connections. For example, Safe Water Network Ghana engaged in a project to build stations with 500+ piped connections, hence the 1126% increase in new connection revenue.

All revenue channels increased except for piped connection sales for Safe Water Network Ghana and community standpipe sales for Water Mission<sup>2</sup>. At Safe Water Network Ghana, the decrease in revenue is due to a reimbursement strategy in response to the free water mandate, which required implementers to provide tariff-free water in Ghana. Safe Water Network Ghana provided customers with free water from community standpipes while reimbursing customers who purchased water through pre-paid piped connections. The strategy allowed piped connection customers to maintain the convenience of on-premise water for an upfront cost that would later be reimbursed. While overall revenue did dip, it was only by 12%, which attests to the value of convenience to these customers. In contrast, Water4 continued to provide free water at both pre-paid community kiosks and individual household, school, and clinic connections under the free water mandate. Both implementers expect reimbursement from the Government of Ghana.

The free water mandate, first enacted in April 2020, was a government policy that led to a reduction in revenue collection for Ghana implementers as evidenced in the Cash Flow Statement for both Safe Water Network Ghana and Water4. Figures 1 and 2 show the impact of the mandate on both organizations.

While revenues increase significantly, the ratio of uncollected revenue also increases. Higher output also increases station expenses.

Figure 1 Station Financials (Ghana) 2019



Figure 2 Station Financials (Ghana) 2020



<sup>2</sup> See Table 3 note i. Analysis in Honduras was done to comparative sets of stations. The pre-covid stations did not have piped connections, which could be an indication of why community standpipe stations are lower if that volume is made up for in the piped connection sales.

Similarly, in Uganda, the government issued a decree that allowed water users to delay payment on their water bills as a measure to ease the financial impact of the pandemic on individuals. Water for People experienced a 6% decrease in collection efficiency for kiosk sales and a 25% decrease for piped connections. There was low collection efficiency among institutional and commercial customers (16% on average), which explains the reduction in efficiency for piped connections. This trend could be due to the decree, but there was also a scheme within the Ugandan cluster with poor payment compliance.

Other government policies threatened revenue generation in cases where implementers were providing secondary goods and unable to deliver them due to travel bans. For example, In Haiti, restrictive travel bans interrupted the supply chain of secondary goods to water stations, resulting in a reduction of revenue for those products. However, water sales rose 19% due to increased demand from decentralized stations. Travel bans and business lockdowns also hindered new construction and infrastructure projects and slowed the pace of new franchise launches.

For most implementers, including those that lost revenue, governments were an essential partner in securing travel permits and disseminating resources like health and safety information or handwashing stations. Implementers cited access to philanthropic funding as a valuable asset to overcome revenue collection challenges and react quickly to disseminate the resources needed to ensure the health and safety of staff and customers: “My organization’s revenues were fortunately not negatively impacted, thanks to the great work of our fundraising team” (Water for People, Survey Response, March 19, 2021). This trend goes beyond grant funding. Jibu, which utilizes private capital, found support from their external network in the form of bridge loan debt.



Photo by Safe Water Network





Photo by Water Mission

### **Expenses and Incremental COVID-19 Costs**

In Ghana, expenses increased by 22% for Safe Water Network and 60% for Water4. Substantially higher volumes from the free water mandate led to an increase in variable costs required to produce water at a higher demand. This increase included expenses such as electricity, chemicals, generator fuel, and maintenance. Water4 runs its stations entirely on solar power. When demand increased throughout the day it required running back-up generators when solar systems were not at peak energy production. The increased capacity also required upgrades to existing pump systems to meet demand.

Other implementers did not cite any substantial impact on station expenses. Implementers took on the cost of extra resources to limit infection. As one implementer stated, “We implemented pre-emptive measures to ensure quality control and create an environment for safe and hygienic sales that led to higher one-off costs for sanitation expenditures” (Untapped dloHaiti, Survey Response, March 31, 2021). The COVID Impact Assessment Tool captures these costs in the Cash Flow Statement as COVID-19 Related Capex Costs. However, not all implementers were able to track these costs or disaggregate them from standard reporting. Where data was available, implementers spent \$50-200 per station on education and training programs, \$100-200 per handwashing station, and \$15-30 on cleaning and sanitation equipment per station. These expenses were typically covered by a central office and not considered part of the station expenses.

## Lessons Learned and Future Planning

The lessons learned from the COVID-19 pandemic can inform a framework for response to future public health crises of infectious disease. We have developed a set of KPIs based on the lessons learned from COVID-19 strategies across different implementers. The KPIs selected for this framework can be a guide for measuring success in responding to a crisis.

### SWE M&E Framework for Public Health Crisis of Infectious Disease

Table 4 consists of an M&E framework with KPIs that serve as a means to track progress against maximizing benefit and minimizing harm. It applies to other public health crises and can be adapted by SWEs based on their own needs and capabilities. Data should be digitized as much as possible. Many of the KPIs that are self-reported by construction teams, field teams, and office staff can be digitized and centralized through the use of a data management system.

Table 4 SWE M&E Framework and KPIs for Infectious Disease Crisis (Maximizing Benefit)

Outcome: Maximizing Benefit				
KPI	Definition	Data Source	Frequency	Responsible
Number of Kiosks	Total number of water station kiosks in operation	Self-reported by the construction team	After commissioning	Construction/field teams
Number of Piped Connections	Total number of piped connections to households, commercial businesses, and institutions		After commissioning	
Number of Hand Pumps	Total number of hand pumps in operation		After commissioning	
Population with Access	Total number of people within communities served		After commissioning	
Number of HCFs served	Total number of healthcare facilities with piped connection		Monthly	
Uptime	Percent of hours of functional operation out of total anticipated operating hours for all kiosks, connections, and hand pumps	Digital tracking is possible through remote monitoring	Daily	RMS/ Station operators
Digital Data	Percent of data indicators collected digitally rather than manually	Comparison of data model to manually collected data	Quarterly	Office M&E staff
Total Volume	Total volume sold	Tracked digitally or manually through meters	Daily	Digital meters/ station operators
Total Revenue	Total cash collected			
Collection Efficiency	Percent of revenue collected of anticipated revenue			
Station Expenses	Total costs of running stations. If possible, itemized.	Tracked manually by station operators	Daily	Station operators



Table 5 SWE M&E Framework and KPIs for Infectious Disease Crisis (Minimizing Harm)

Outcome: Minimizing Harm				
KPI	Definition	Data Source	Frequency	Responsible
Established guidelines for limiting infection	A strategy with point-by-point direction and specification for procedures, communication, and resources needed to limit infection according to guidelines from international health organizations and government guidelines	Self-reported from management	One time with quarterly review	Management
Established communication network	A strategy for the type of information needed, channels for delivery, and point people			
Digital transactions	Percent of digital transactions	Comparison from digital meter data to overall estimated transactions	Monthly	Office M&E Staff
Hygiene Training	Number of hygiene trainings conducted	Self-reported from field teams	Weekly	Field team
Stations receiving PPE	Percent of total stations that received protective equipment like masks			
Stations receiving hygiene products	Percent of total stations receiving hygiene products like soap			
Stations receiving communication materials	Percent of total stations receiving communication materials			
Stations with handwashing stations	Percent of total stations with handwashing stations			
COVID-19 Costs	Incremental costs of resources to minimize harm. If possible, itemized by cleaning and sanitation, PPE, handwashing stations, hygiene products, and informational products			

## Pandemic Response Stakeholder Checklist

In addition to the framework, SWEs can use our Pandemic Response Stakeholder Checklist to evaluate needs and maximize the use of their existing network.

Table 6 Pandemic Response Stakeholder Checklist

1.	<b>Stakeholder Analysis</b>	Conduct analysis to determine current and available stakeholders at global, national, and local level
	<ul style="list-style-type: none"> <li>• Management Team</li> <li>• Field Team</li> </ul>	
2.	<b>Global Outreach</b>	<ul style="list-style-type: none"> <li>• How does the infectious disease spread? What information or resources are needed to limit infection?</li> <li>• How do these limitations impact our specific business model?</li> <li>• Are there funds or resources available from these partners that can help us limit infection or maximize the benefit of our safe water service?</li> <li>• Are these restrictions in place or societal shifts that limit access to these partners?</li> <li>• Have we engaged with all available global partners?</li> </ul>
	<ul style="list-style-type: none"> <li>• International Health Organizations</li> <li>• Other SWE Implementers</li> <li>• Philanthropic Donors</li> <li>• Other sources of funding</li> <li>• International Development Agencies</li> <li>• International Suppliers</li> </ul>	
3.	<b>National Outreach</b>	<ul style="list-style-type: none"> <li>• What policies have been enacted in response to the pandemic and how do they impact our business model?</li> <li>• What policies would help us carry out our operations during this crisis?</li> <li>• Are there restrictions in place that limit access to these partners?</li> <li>• Have we engaged with all available national partners?</li> </ul>
	<ul style="list-style-type: none"> <li>• National Governments</li> <li>• Regulatory agencies</li> <li>• Suppliers</li> <li>• Service Delivery Partners</li> </ul>	
4.	<b>Local Outreach</b>	<ul style="list-style-type: none"> <li>• As a result of the pandemic, which aspects of our operations are threatened?</li> <li>• How can these partners be instrumental in carrying out standard operational activities and incremental activities to limit infection?</li> <li>• What resources and skills are available? What steps can we take to enhance these assets?</li> <li>• Are there restrictions in place that limit access to these partners?</li> <li>• Have we engaged with all available local partners?</li> </ul>
	<ul style="list-style-type: none"> <li>• Community leadership</li> <li>• Local labs, suppliers, and monitoring agencies</li> <li>• Station owners</li> <li>• Station managers</li> </ul>	

## Resiliency SWOT Analysis

The SWE model not only demonstrated resilience through the COVID-19 crisis but also positioned itself as a resource for infection prevention and pandemic response. Implementers were able to keep stations running and even expanded service. Demand and willingness to pay for safe water did not decrease. A SWOT analysis provides insight into the aspects of the SWE model that make it resilient in a public health crisis. It also shows weaknesses of the model that could threaten resiliency.

Table 7 SWE Resiliency SWOT Analysis

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>• Network of local partners developed through community engagement and capacity building</li> <li>• Network of philanthropic donors</li> <li>• Lower reliance on revenue than grant funding</li> <li>• Network of government and social sector partners</li> <li>• Open to technology solutions like remote monitoring and digital transactions</li> <li>• Well-defined monitoring, evaluation, and learning systems</li> <li>• Agile and adaptive field teams</li> <li>• Essential service</li> </ul>	<ul style="list-style-type: none"> <li>• Highly regulated sector</li> <li>• Stations rely on centralized maintenance team where travel is required</li> <li>• Operate in communities with limited infrastructure and resource constraints</li> <li>• Reliant on suppliers for essential tools and parts</li> <li>• Low cash reserves</li> </ul>
Opportunities	Threats
<ul style="list-style-type: none"> <li>• Local partners compensate when field teams cannot access communities</li> <li>• Partners and implementers share information and strategy</li> <li>• Free water mandates could increase demand for safe water long-term</li> <li>• Supply of funding increases in response to safe water needs</li> </ul>	<ul style="list-style-type: none"> <li>• Suppliers are unable to operate business or import products</li> <li>• Policy restricts travel</li> <li>• Policy limits revenue generation</li> <li>• Free water mandate lowers willingness to pay in the short-term</li> <li>• Stations fail due to technical or financial difficulties</li> </ul>



Photo by Water Mission



Photo by Safe Water Network



## Key Learnings

- **The SWE model is resilient.** Implementers were able to continue normal operations and expand access to safe water during the pandemic.
- **Field teams rose to the challenge.** The difficulties of the COVID-19 crisis required quick adaptation and creative thinking to overcome policy challenges and implement procedures to limit infection. Field teams rose to the challenge and kept stations running, which demonstrates that the SWE model of centralized management and maintenance is not only a solution for rural water supply failure but also a resource for problem-solving in times of extraordinary difficulty.
- **Local capacity building is essential for increasing resiliency.** Travel restrictions could be a consequence of many types of crises, such as natural disasters and conflict. By building communications and capabilities of local organizations and people, SWEs increase the resilience of their model.
- **Revenue diversification is an asset for SWEs.** Many SWEs cited their access to funders as a major driver to achieve their objectives to maximize benefit and minimize harm. This access provided a tool for swift and broad action. Subsidy requirements, which lead SWEs to rely on outside funding, are an advantage in the case of a public health crisis where revenue may be threatened and large amounts of capital are required to take action.
- **Transition to digital is not only a matter of efficiency but also of safety.** Digital technology for monitoring, dispensing, and transacting was instrumental in limiting infection and overcoming the challenges of travel bans. Limiting person-to-person contact is an effective strategy for protecting customers and employees from infection.



Photo by Safe Water Network

## Next Steps

- **Alignment in financial and operational reporting is important for monitoring success and learning from other implementers.** There is still a need to create more consensus on financial reporting and definitions of financial indicators. Co-published reports are valuable for driving collaboration and understanding. A list of reporting discontinuities found through this research can be found in Appendix 5 and can be used as a prompt for further discussion.
- **Free water mandates provide a platform for natural experiments in safe water demand.** As the free water mandate ends, SWEs will begin to collect data to determine the impact of this policy on demand and willingness to pay. Volume increases in Ghana demonstrate a higher demand for safe water at lower prices, which could encourage the use of subsidies.
- **SWEs should explore the relationship between financial sustainability and resiliency.** Aspects of resiliency require increased capital and highlight the advantage of funder relationships and unrestricted capital. Implementers should engage in discussion on how these concepts interact with each other.



Photo by Water for Good



## Appendix 1: The World Bank COVID Impact Assessment Tool <sup>4</sup>

WSP Financial Projections Period		2021	
Name of WSP		Sample WSP	
Name of Contact Person		Finance	
Contact Tel and Email Address			
Opening month		6 Enter month number	
Currency	IDR	Please enter data in blue cells	
		In Millions	

  

INCOME STATEMENT	Actual Average Jun	Projection												Pre Covid Total	Post Covid Total	Financial Impact Total	Remarks
Enter Average Revenue Over Last 12 Months	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun				
<b>REVENUES</b>																	
Billed Revenue from Water Sales (million)	2.00	1.277	1.108	1.190	1.201	1.209	1.217	1.216	1.206	1.817	1.817	1.817	1.817	24.000	16.892	7.108	
Billed Revenue from Sewerage Sales (million)	0.79	1.205	1.022	1.088	1.096	1.097	1.097	1.098	1.112	1.781	1.781	1.781	1.781	8.760	15.939	7.179	
Revenue collection efficiency (%)	90%	40%	35%	30%	30%	30%	30%	30%	50%	50%	50%	50%	50%				
Actual revenue collected (million)	2.50	0.993	0.745	0.683	0.689	0.692	0.694	1.157	1.159	1.799	1.799	1.799	1.799	30.000	14.009	15.991	
Connection Revenue	0.060	0.084	0.084	0.036	0.036	0.036	0.036	0.036	0.000	0.000	0.000	0.000	0.000	0.000	0.372	0.372	
Other revenue (please specify, if applicable)	0.20	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	2.400	1.650	0.750	
<b>TOTAL REVENUES</b>	2.700	1.192	0.968	0.906	0.864	0.867	0.869	1.332	1.298	1.938	1.938	1.938	1.938	32.400	16.049	16.351	
Local Government Transfers (Plus/Minus)	0.300	0.200	0.200	0.200	0.500	0.500	0.200	0.200	0.200	0.200	0.200	0.200	0.200	2.400	2.600	0.200	
<b>Total Revenue (Plus/Minus) Transfers</b>	2.900	0.992	1.168	1.106	1.364	1.367	1.069	1.532	1.498	2.138	2.138	2.138	2.138	34.800	18.649	16.551	

  

INCOME STATEMENT	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Pre Covid Total	Post Covid Total	Financial Impact Total	Remarks
<b>OPERATING COSTS</b>																	
<b>Water Operating Costs</b>																	
Water Operating Salaries	0.300	0.297	0.349	0.349	0.349	0.349	0.297	0.297	0.297	0.297	0.297	0.297	0.297	3.600	3.777	0.177	
Water Extraction Cost	0.030	0.089	0.076	0.081	0.082	0.082	0.083	0.083	0.085	0.136	0.136	0.136	0.136	0.360	1.203	0.843	
Water Production Electricity Cost	0.020	0.174	0.037	0.039	0.040	0.040	0.040	0.041	0.066	0.066	0.066	0.066	0.066	0.240	0.714	0.474	
Chemical Treatment	0.020	0.046	0.039	0.042	0.042	0.043	0.043	0.043	0.044	0.070	0.070	0.070	0.070	0.240	0.622	0.382	
Maintenance & Repairs	0.030	0.350	0.350	0.350	0.350	0.350	0.350	0.350	0.350	0.350	0.350	0.350	0.350	4.200	4.200	0.000	
Pension Expense	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Administration	0.130	0.153	0.153	0.153	0.153	0.153	0.153	0.153	0.153	0.153	0.153	0.153	0.153	1.620	1.838	0.218	
Other Water Operating Costs		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
<b>Water Supply Operating Costs</b>	0.540	1.110	1.004	1.014	1.015	1.016	0.966	0.967	0.970	1.072	1.072	1.072	1.072	6.480	12.355	5.875	
<b>Wastewater Operating Costs</b>																	
Wastewater Employee Salaries	0.130	0.135	0.135	0.135	0.135	0.135	0.135	0.135	0.135	0.135	0.135	0.135	0.135	1.620	1.622	0.002	
Electricity Costs	0.020	0.044	0.037	0.040	0.040	0.040	0.040	0.040	0.065	0.065	0.065	0.065	0.065	0.240	0.586	0.346	
Maintenance & Repairs	0.030	0.085	0.085	0.085	0.085	0.085	0.085	0.085	0.085	0.085	0.085	0.085	0.085	0.780	1.020	0.240	
Administrative Expenses	0.180	0.194	0.194	0.194	0.194	0.194	0.194	0.194	0.194	0.194	0.194	0.194	0.194	2.208	2.332	0.124	
Other Wastewater Costs	0.110	0.110	0.110	0.110	0.110	0.110	0.110	0.110	0.110	0.110	0.110	0.110	0.110	1.320	1.320	0.000	
<b>Total Wastewater Costs</b>	0.510	0.568	0.561	0.564	0.564	0.564	0.564	0.565	0.589	0.589	0.589	0.589	0.589	6.160			
<b>Other Direct Costs</b>	0.010	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.120	1.200	1.080	
<b>Total Operating Costs</b>	1.060	1.778	1.665	1.678	1.679	1.681	1.630	1.631	1.634	1.761	1.761	1.761	1.761	12.760	20.420	7.660	
Interest Expense (if applicable)	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.120	0.120	0.000	
Depreciation Expense	0.010	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.144	0.144	0.000	
<b>TOTAL COSTS</b>	1.090	1.800	1.687	1.700	1.701	1.703	1.652	1.653	1.656	1.783	1.783	1.783	1.783	12.880	20.540	7.660	
<b>PROFIT BEFORE TAXES</b>	1.810	0.808	0.519	0.593	0.337	0.336	0.583	0.122	0.159	0.355	0.355	0.355	0.355	21.912	1.890	23.802	
Income Taxes (if applicable)	0.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.480	0.000	0.480	
<b>PROFIT AFTER TAXES (assumes cash collections)</b>	1.774	0.808	0.519	0.593	0.337	0.336	0.583	0.122	0.159	0.355	0.355	0.355	0.355	21.288	2.030	23.322	

  

CASH FLOW STATEMENT	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Pre Covid Total	Post Covid Total	Financial Impact Total	Remarks
<b>PROFIT AFTER TAXES (assumes cash collections)</b>	1.774	0.808	0.519	0.593	0.337	0.336	0.583	0.122	0.159	0.355	0.355	0.355	0.355	21.288	2.030	23.322	
Add: Depreciation Expense	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.144	0.144	0.000	
<b>Operating Cash Flow</b>	1.786	0.796	0.507	0.581	0.325	0.324	0.571	0.110	0.147	0.367	0.367	0.367	0.367	21.432	1.890	23.322	
Principal Repayments	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	1.200	1.200	0.000	
<b>Cash Flow After Debt Service</b>	1.686	0.696	0.607	0.681	0.425	0.424	0.671	0.210	0.247	0.267	0.267	0.267	0.267	20.232	0.690	23.322	
COVID-19 Related CAPEX Costs	0.000	0.050	0.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.300	0.000	0.000	0.000	0.550	0.550	
Programmed Funding For Capex	0.000													0.000	0.000	0.000	
<b>Month End Cash Flow</b>	1.686	0.946	0.807	0.681	0.425	0.424	0.671	0.210	0.247	0.267	0.033	0.267	0.267	20.232	3.644	23.876	

  

Itemized COVID-19 CAPEX	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Pre Covid Total	Post Covid Total	Financial Impact Total	Remarks
existing work in process											0.300			0.000	0.300	0.300	
Kiosks & Hand Washing Stations				0.200										0.000	0.200	0.200	
Cleaning and Sanitation Equipment		0.050												0.000	0.050	0.050	
CAPEX intervention 4														0.000	0.000	0.000	
CAPEX intervention 5														0.000	0.000	0.000	
<b>Total capital costs</b>	0.000	0.050	0.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.300	0.000		0.000	0.550	0.550	

4 World Bank. 2020. COVID Financial Impact Assessment Tool for Water and Sanitation Providers User Guide. Vol. 1 of 2 Washington, DC : World Bank Group

Water Capacity, Production & Connection Program

Opening Household Indicators				Month Ending	Month-End House Connections	Weighted Average Tariff	NRW										
Please enter data in blue cells				Jun	29,762	0.75	35.0%										
				Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun		
Unaccounted For Water (NRW)				35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%		
Households Operations																	
Average Tariff (Currency/m3)				0.75													
Connection Charge (Currency/Connection)				120													
Tariff Rate increases/(decreases)				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		
Domestic Month-End Factor:				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Domestic Average Factor				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Effective Tariff				0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75		
New Connections				300	500	500	300	300	300	300	-	-	-	-	-		
Cumulative Water Connections (Month End)				30,082	30,582	31,082	31,382	31,682	31,982	32,282	32,282	32,282	32,282	32,282	32,282		
Cumulative Water Connections (Ave.)				29,932	30,332	30,832	31,232	31,532	31,832	32,132	32,282	32,282	32,282	32,282	32,282		
Percent Growth in Connections				1.0%	0.8%	0.8%	0.5%	0.5%	0.5%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%		
Average Usage/Connection (m3/day)				1.100	1.100	1.200	1.200	1.200	1.200	1.200	1.100	1.100	1.100	1.100	1.100		

## Appendix 2: Adjusted COVID Impact Assessment Tool

[illegible]

## Water Capacity, Production & Connection Program

Opening Household Indicators		Month Ending	Month-End House Connections	Weighted Average Tariff	NRW												
Please enter data in blue cells		Dec	916	0.85	0.0%												
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec				
Unaccounted For Water (NRW)		0.0%															
Household Operations																	
Average Tariff (Currency/m3)		0.85															
Connection Charge (Currency/Connection)		85															
Tariff Rate Increases/(decreases)		0%															
Domestic Month-End Factor:		1.00															
Domestic Average Factor		1.00															
Effective Tariff		0.85															
New Connections		16															
Cumulative Water Connections (Month End)		916															
Cumulative Water Connections (Ave.)		916															
Percent Growth in Connections		0.0%															
Average Usage/Connection (m3/day)		0.141															
Opening Commercial Indicators		Month Ending	Month-End Commercial Connections	Weighted Average Tariff													
NRW		Dec	-	-													
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec				
Commercial Operations																	
Average Tariff (Currency/m3)		-															
Connection Charge (Currency/Connection)		-															
Tariff Rate Increases/(decreases)		0%															
Domestic Month-End Factor:		1.00															
Domestic Average Factor		1.00															
Effective Tariff		-															
New Connections		-															
Cumulative Water Connections (Month End)		-															
Cumulative Water Connections (Ave.)		-															
Percent Growth in Connections		0.0%															
Average Usage/Connection (m3/day)		-															
Water Monthly Production Capacity (m3)		68,960															
Monthly Water Demand (m3)		3,869															
Potential Monthly Demand (Household and Commercial Connections)		42,964															
Kiosks		-															
Hand Pumps		-															
Total Water Consumption (m300)		46,833															
Total Production Requirement (m3)		46,833															
Total Actual Production (m3)		46,833															
Total Water Consumed (m3)		46,833															
Water (Shortage)/Surplus (m3)		20,127															
Household and Commercial Revenue		-															
Daily Demand (m3)		129															
Daily Revenue		110															
Total Water Connections		916															
New Water Connection Revenue (million)		-															
Total Connection Water Revenue (million)		0.003															
Kiosk Operations																	
Number of Operating Kiosks		93															
Average Daily Volume per Kiosk (m3)		16.4															
Total Daily Volume		1,432															
Total Monthly Volume (m3)		42,964															
Starting tariff for Kiosks (m3)		0.95															
Tariff Increases		0%															
Month End		1.00															
Average		1.00															
Effective Tariff		0.95															
Total Kiosk Revenue (in million)		0.041															
Hand Pump Operations																	
Number of Hand Pumps		-															
Number of Daily Visits/Hand Pump		-															
Total Monthly Visits		-															
Average Water Extracted per Visit (Liters)		-															
Monthly Extraction (m3)		-															
Charge per Visit		-															
Total Hand Pump Revenue (in million)		-															
Opening Sewerage Connections		Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec			
Sewerage tariff/m3																	
Connection Charge (currency/connection)																	
Tariff Rate Increases		0%															
Domestic Year-End Factor:		1.00															
Domestic Average Factor		1.00															
Effective Tariff		-															
Opening Sewerage Connections		-															
New connections		-															
Monthly Wastewater Capacity (m3)		-															
Sewerage Processed (m3)		-															
Total Sewerage Connections		-															
Sewerage Billed (million)		-															
Sewerage Connection Revenue (million)		-															
Other Revenue (million)		0.001															
Water Supply Operating & Admin Costs		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec				
Water Extraction Cost		-															
NRW @ Extraction		0%															
Monthly Water Extraction		46,833															
Cost/M3 in Currency		-															
Water Extraction Costs (million)		-															
Water Production Electricity Cost		-															
Monthly Water Production		46,833															
Water Pumping Costs/m3		0.166															
Electricity Costs (million)		0.009															
Chemical Treatment		-															
Chemical Costs (currency/m3)		0.007															
Chemical Cost (million)		0.0003															
Maintenance & Repairs		-															
Maintenance (million)		0.001															
Water Operating Salaries		-															
No. of Employees		93															
Cost/Employee (currency/month)		36.66															
Monthly Direct Salaries Costs		0.003															



### *Appendix 3: Questions from Qualitative Survey on COVID-19 Impact and Response*

1. What safety measures were put in place to protect SWE employees and customers?
2. What framework did you use to design a COVID-19 strategy and what were the components of that strategy (e.g., a three-point strategy for operations, funding, and policy)?
3. How were operations impacted, including your supply chains?
4. How were revenues impacted by the COVID-19 pandemic?
5. How were expenses impacted by the COVID-19 pandemic?
6. What government policies impacted your operations? What were the benefits and disadvantages of those policies?
7. Did your M&E process change due to the COVID-19 pandemic? If yes, please explain.
8. Is there anything not included in these questions that affected operations or response during the COVID-19 pandemic?



Photo by Water 4

## Appendix 4: Code Book for Thematic Analysis

Theme	Sub-Topic	Code	Description
Revenue	Increase	RI	Revenues increased
Revenue	Decrease	RD	Revenue decreased
Volumes	Increase	VI	Volumes increased
Volumes	Decrease	VD	Volumes decreased
Expenses	Increase	EI	Expenses increased
Expenses	Decrease	ED	Expenses decreased
Operations	New Construction	NC	Impact to new construction
Operations	Policy	PL	Impact related to policy from government or instances where SWEs collaborated with governments or informed policy
Operations	Supply Chain	SC	Impact to supply chain
Operations	Functionality	FC	Reference to maintaining quality control and reliability at stations
Operations	Maintenance	MT	Reference to centralized maintenance team and the challenges they face and solutions that helped them
Information	Information	IN	Reference to information dissemination
Resources	PPE	PPE	Reference to protective equipment used to minimize exposure to COVID-19
Resources	Handwashing Stations	HS	Reference to the building of hand washing stations
Resources	Training	TR	Reference to training
Resources	Posters	PS	Use of posters
Resources	Funding	FD	Use of additional funding or loss of funding
Resources	Partners	PT	Collaboration with different partners, stakeholders, and other SWEs
Resources	Digitization	DZ	Use of digital products and service to overcome challenges of pandemic
Resources	Staff Healthcare	SH	Benefits or provisions for employee healthcare
Procedures	Remote Work	RW	Reference to remote working
Procedures	Limited Gatherings	LG	Reference to limited gatherings
Procedures	No Travel	NT	Reference to travel bans
Procedures	Disinfection	DI	Reference to procedures for disinfection
Procedures	Data Collection	DC	Reference to data collection or monitoring
Procedures	Social Distancing	SD	Reference to social distancing

## Appendix 5: Financial Reporting Discontinuities Among Participating SWEs

The report required the cooperation of six implementers to report finances in a similar framework. In addition, it required the alignment and adaptation of SWE reporting and WSP reporting from the World Bank Group. The approach for this financial analysis indicates that there is an opportunity to compare across trends even when reporting standards vary. This exercise also uncovered opportunities for further work and discussion on financial reporting.

### Data Availability

1. **Implementers disaggregate expenses differently and some do not disaggregate at all.** Implementers would benefit from coming to a consensus on a few key expense categories to disaggregate. This approach would still allow flexibility in how implementers choose to report expenses within their organization.
2. **Collection on arrears is grouped into overall water sales.** Implementers could benefit from disaggregating over-collection from arrears from regular water sales. This approach would provide more clarity into collection efficiency.

### Reporting Standardization

3. **Alignment of revenue and expense classification among implementers with similar ownership models.** SWEs vary by ownership model, but even in cases where the model is similar, there are discrepancies in how owner earnings are reported. For example, some implementers who use a social entrepreneur model classify the owner earnings through different levels of revenue collection e.g., if a social entrepreneur sells \$100 of water and keeps 25% then revenues are reported as \$100 in wholesale sales and \$75 in retail sales with the difference being the entrepreneur's return. In other cases, implementers with this model listed the entrepreneur's earnings as an expense.
4. **Measurement and definition of non-revenue water vary across implementers.** Some implementers classify non-revenue water as under collection, others as waste and leakage, and others as both. Some implementers are not able to measure either.
5. **Classification of maintenance and service expenses.** This topic warrants discussion on how SWEs classify station expenses versus long-term maintenance and capital reinvestments and replacements.

### Discontinuities with The World Bank Group Reporting Style

- **Non-revenue water is calculated as an expense.** The total cost of electricity increased based on the percentage of non-revenue water. SWEs typically show non-revenue water as lost revenue and electricity costs are groups by month rather than by volume. Bills can sometimes be unpredictable or contain charges for previous months so they don't map to volumes exactly.
- **New Connection Revenue is included in revenue.** SWEs track water sales as revenue, but don't typically include the cost of a connection.





# Keep the Water Flowing

## Resiliency of the Safe Water Enterprise Model

Understanding the Impact of the COVID-19 Pandemic on Safe Water Enterprises through a Common Financial and Monitoring and Evaluation Framework.