

# GHANA SECTOR REVIEW: SCALING SMALL WATER ENTERPRISES

AUGUST 2017



# ACKNOWLEDGEMENTS



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In addition, we thank the Ministry of Sanitation and Water Resources and the Ministry of Finance for their engagement and support with our efforts to advance small water enterprises in Ghana.

We also would like to acknowledge the participants of the Small Water Enterprise Working Group (see Appendix 7.3) who work side-by-side with us to mobilize funding for the Small Water Enterprise sector, guiding and facilitating the testing of new ideas and initiatives to enable expansion and scale of small water enterprises.

We wish to extend our sincere appreciation and a heartfelt gratitude to Honourable Joseph Kofi Adda, Minister for Sanitation and Water Resources for his graciousness to launch this report at the 2017 World Water Week in Stockholm.

Finally, we would like to thank the following experts, sector players and advisors who played a significant role in this report. We acknowledge the contributions of:

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- Our advisors and reviewers for the perspective they brought to the report including Mr. Mintah Afosah Aboagye, Dr. Kwabena Nyarko and Benedict Kubabom, as well as Jonny Crocker, Ph.D who provided editorial support.
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- Our Safe Water Network team members led by Joseph Ampadu-Boakye and Amanda Gimble who were supported by Edema Ojomo, Mark Owusu, Kwame Asumedu, Charles Yeboah and Sandy Hwang.

# LETTER FROM CHARLES NIMAKO

## DIRECTOR, AFRICA INITIATIVES, SAFE WATER NETWORK

Dear Colleagues,

In collaboration with partners and stakeholders, Safe Water Network recently completed this review of the opportunity to scale-up Small Water Enterprises in Ghana. This review puts forward several policy recommendations to overcome the barriers to reach an estimated 3.2 million of the 8.3 million people lacking access to safe water in rural Ghana.

Trends across the sector are working in our favor. The Government of Ghana's vision for achieving water for all in Ghana by 2025, along with the Sustainable Development Goals, are attracting heightened attention on opportunities to reach communities that lack access to safe water. Coincident with this is an increased emphasis on market-based solutions that encourage local accountability and provide financial incentives throughout the value chain. Moreover, we are very encouraged by the Ministry of Sanitation and Water Resources' commitment to strengthen its institutional structure, support new models and approaches – including small water enterprises – and bring increased focus to public private partnerships.

Some of the recommendations made in this Sector Review are already in development. This includes creation of a Ghana Water Enterprise Trust to attract the capital needed to scale-up Small Water Enterprises; the development of regional technical servicing capabilities for maintenance and repairs; and the piloting of a public private partnership project. We look forward to advancing these initiatives along with other recommendations in the review with the guidance of the Government of Ghana and the Small Water Enterprise Working Group which is composed of a cross section of water sector leaders.

I look forward to hearing your ideas about moving this work forward to serve the many Ghanaians in need of safe water.

Charles Nimako,  
*Director, Africa Initiatives, Safe Water Network*

# EXECUTIVE SUMMARY

This 2017 Ghana Sector Review is the first in a series of trend reports on safe water access in Ghana. It examines the **state of the water sector in Ghana**, the **financial requirements to achieve universal access to safe drinking water**, and the **role of small water enterprises (SWEs)** in contributing to universal access. Most importantly, it also highlights the barriers and **recommended actions** for SWEs to reach their full potential.

This Review builds on the 2013 “Ghana Market Assessment: Market-based Provision of Water at the Community Level,”<sup>a</sup> and is supplemented by an updated *Spotlight Report*<sup>b</sup> (Aug. 2017) on the Ghana Water Enterprise Trust.

Today, **8.3 million** Ghanaians lack access to basic water services, the majority of whom live in rural areas. This number jumps to **23.1 million** if measured against the higher benchmark of Sustainable Development Goal (SDG) 6.1<sup>c</sup>. This shift is of particular importance, as it significantly impacts the funding required.

To provide basic coverage for all by 2025, as outlined in the Ghana government’s water sector strategic development plan, requires a capital investment of USD 327 million a year between now and 2025. When the SDG requirements of reliability, quality and at-home availability are taken into account, **capital costs nearly triple to USD 946 million annually**. With current sector funding at USD 114 million a year, this leaves a significant funding gap to achieve universal access.

SWEs are off-grid community water systems operated as local businesses that provide consumers with a reliable source of safe, affordable water, and in some cases, can provide on-premises water through distribution networks with water points, and household connections, where feasible, moving consumers up the ‘service ladder’ from basic water access.

Informed by a rigorous analysis of data from Ghanaian ministries and agencies, combined with data from Safe Water Network’s initiatives and programs, this report describes the benefits of SWEs in helping to address the challenges of inadequate safe water access and insufficient funding. SWEs can:

**(a) provide reliable, affordable safe water access on a sustainable basis to underserved off-grid communities:**

SWEs can provide access to 3.2 million of the 8.3 million people (2,304 of 9,216 communities) that lack access to basic water services, without subsidies, at a cost of **USD 35/person**; an additional 1.6 million people with subsidies, and many millions more of the additional 14.8 million people who lack on premises access to safe water.

**(b) reduce system failures:** For a one-time capital investment of USD 100,000<sup>d</sup>, an SWE can operate indefinitely with ongoing operating and maintenance costs covered by user tariffs. The low failure rates of SWEs, due to their ‘enterprise’ model, ensure reliable and sustainable access to safe water, and greatly reduce the likelihood of lost investments in systems.

<sup>a</sup> This sector review can be found here: [http://www.safewaternet.org/sites/default/files/Ghana\\_Market\\_Review-2013.pdf](http://www.safewaternet.org/sites/default/files/Ghana_Market_Review-2013.pdf).

<sup>b</sup> See Spotlight: Ghana Water Enterprise Trust, August 2017 at [safewaternet.org](http://safewaternet.org).

<sup>c</sup> SDG 6.1 defines universal access as available at home, available when needed, and free from microbial and chemical contamination.

<sup>d</sup> Assumes average community of 3,000 people.



**(c) attract new funding from the private sector, social impact investors, and entrepreneurs:** SWEs could attract GHS 110-132 million (USD 25-30 million) toward the GHS 492.8 million (USD112 million) required to for SWEs to provide access to 3.2 million people without subsidies.

To realize these benefits, the key barriers to scaling SWEs—described in detail in the Report—need to be addressed. Our recommendations to overcome the barriers fall into three broad categories:

- **Policy and Enabling Environment**

1. **Allow other organizations, in addition to the Ghana Water Company Limited and the District Assemblies, to operate water systems** in urban and rural areas, respectively to open up the market to the private sector.
2. **Establish service-level benchmarks** for SWEs in such areas as reliability, water quality and pricing, to ensure effective operations and sustainable provision of safe, reliable and affordable drinking water.
3. **Review pricing policies for water systems to ensure they are sufficient to cover not only day-to-day operational and maintenance costs but longer term maintenance and repair requirements, and, where feasible, capital recovery; and adopt a system to ensure these policies are enforced.**

- **Small Water Enterprise**

4. **Implement consumer marketing programs** to build consumer demand for safe water, leveraging sector research to understand consumer needs and behaviors
5. **Conduct capacity building activities and develop an open-source digital platform** that contains the tools, resources and practices to facilitate large-scale replication of SWEs.

- **Scale Execution**

6. **Map out financing opportunities, (who the funders are, and the type of funding provided, e.g. grant, investment, lending) and strengthen financial stewardship** of existing investments (through such mechanisms at the Ghana Water Enterprise Trust) to attract additional capital to the sector.
7. **Complete a mapping of the water supply market to understand where SWEs are most appropriate and improve monitoring mechanisms to develop accurate water coverage data.** This will facilitate setting up of SWEs in communities where they can be most cost-effective.
8. **Develop a marketing program to increase visibility of the benefits of SWEs and attract implementing organizations to the SWE sector** to enable growth and expansion of SWEs in Ghana.

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# 1. INTRODUCTION

## 1.1 Small Water Enterprises

**Small Water Enterprises (SWEs) are off-grid community water systems, stations, or kiosks (some with household connections) operated as local water businesses that provide consumers with a reliable source of safe, affordable water.**

Consumers are charged a small fee for water to cover operating expenses and contribute to a maintenance reserve for technical servicing and repairs. Where feasible, SWEs can additionally contribute to capital recovery.

**SWEs can move communities up the water ladder from no access to safely managed drinking water** (Figure 1).

In Ghana, some SWEs operate as “micro utilities” with an extensive water distribution network. SWEs provide customers with access to either “basic” water supply through kiosks/standpipes, Any Time water Machines (ATMs), and truck/bulk delivery; or they can provide access to “safely managed” water supply through on-plot household connections.<sup>a</sup> Micro utilities and household connections evolved in response to consumer demand, and provide greater access and convenience.

Achieving universal access to safely managed drinking water in Ghana will occur, in many cases, through initially providing access to basic drinking water and then, subsequently, providing access to safely managed drinking water. SWEs enable consumers to move up the service ladder incrementally because they can adapt to local market needs, expand distribution points, and in some cases convert basic water supplies to safely managed water supplies by adding household connections. Beyond creating value for communities through the provision of safe drinking water, SWEs create value for a range of actors involved in water service provision by creating jobs and other income generating opportunities (see the SWE value chain in the appendix).<sup>b</sup>

<sup>a</sup>“Basic” and “safely managed” water supplies are part of the Sustainable Development Goal service ladder, as defined by the WHO & UNICEF in Figure 1.

<sup>b</sup>Additional information on benefits of SWEs like jobs created and revenue generated in Ghana can be found in Appendix 7.2.

**Figure 1.**  
**Drinking Water Service Ladder<sup>1</sup>**

SERVICE LEVEL	DEFINITION
Safety Managed	Drinking water from an improved water source that is located on premises, available when needed and free from faecal and priority chemical contamination
Basic	Drinking water from an improved source , provided collection time is not more than 30 minutes for a round trip, including queuing
Limited	Drinking water from an improved source for which collection time exceeds 30 minutes for a round trip, including queuing
Unimproved	Drinking water from an unprotected dug well or unprotected spring
Surface Water	Drinking water directly from a river, dam, lake, pond, stream, canal or irrigation canal

### Key Differentiating Characteristics of SWEs

- **Investments:** a one-time investment covers start-up and program expenses, for the initial years of operation;
- **Cash flow:** a mechanism is in place that ensures revenue generated from the business through water sales covers operating expenses, maintenance reserves and, in some cases, where feasible, contributes to capital recovery. Revenues can also cover future system expansion.
- **Operations:** water systems are operated and managed as businesses, ensuring efficient, reliable and effective water service delivery.
- **Adaptability:** water systems are adaptable to the local market needs. They can also be easily scaled to reach a larger population by incorporating additional distribution points.
- **Consumer activation:** Shifting the focus from a beneficiary to consumer model, and implementing demand generating activities, increases consumer penetration and consumption, leading to increased volume and revenue for the enterprise to be viable.

**From 2012 to 2016, the total number of water points served by SWEs in Ghana grew from 5 to 114,<sup>a</sup> currently providing water access to 1.1 million people.**

SWEs can play an important role in helping the Government of Ghana (GoG) achieve its vision of providing access to reliable, safe,<sup>b</sup> and affordable water services for all. SWEs complement more traditional water distribution models well, as they can reach rural areas and small towns, as well as peri-urban areas, all of which are challenging settings for delivering basic and safely managed water supply.

<sup>a</sup> This represents a total of Safe Water Network stations and WaterHealth Ghana centres, and may underestimate the number of SWEs in Ghana.

<sup>b</sup> In this report, safe water refers to water free from microbial and chemical contaminants; this water may or may not come from a system that is located on premises. Safely managed water refers to on-premises water that is available when needed and free from microbial and chemical contaminants in accordance with the Sustainable Development Goals.

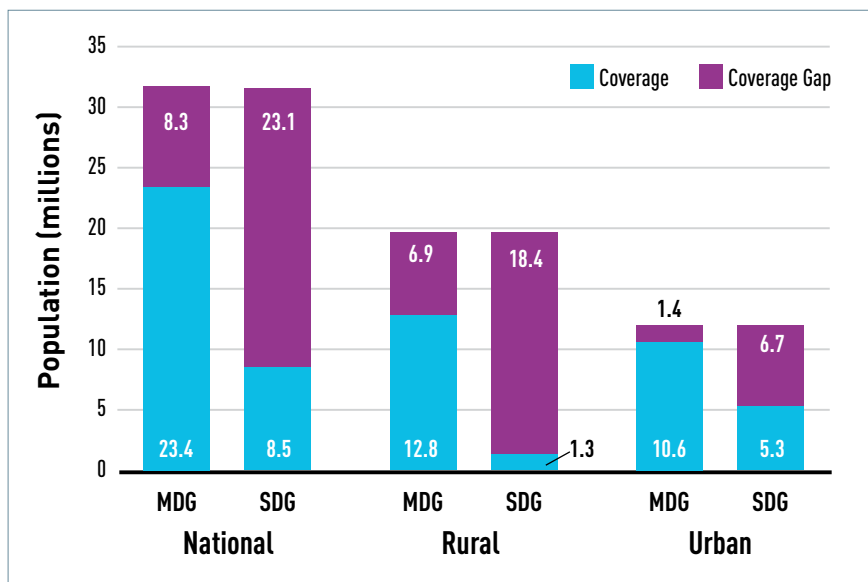


## 1.2 Drinking Water Coverage and Supply in Ghana<sup>a</sup>

**8.3 million people lack access to a basic drinking water service, while 23.1 million people (73% of Ghana's population<sup>b</sup>) lack access to a safely managed service that provides on-premises, reliable, and contaminant-free drinking water.<sup>c</sup>**

The majority of those without access to basic or safely managed drinking water live in rural areas (Figure 2).

**Figure 2.**  
Drinking Water Coverage in Ghana in 2015<sup>d2</sup>



<sup>a</sup> This section reviews the number of Ghanaians lacking access to safely managed drinking water. Due to the overlap of coverage areas between CWSA and GWCL, the stated number of people within the operational areas of CWSA and GWCL (~32 million people) is greater than the population of Ghana (~27 million). Nonetheless we use these numbers in the graphs below for estimating population without access since stakeholders in Ghana use these estimates for planning purposes, consistent with national water service standards. WHO/UNICEF JMP data is also used where required. Please see specific footnotes for assumptions.

<sup>b</sup> Population numbers based on CWSA and GWCL coverage areas (32 million).

<sup>c</sup> Basic and safely managed drinking water services are defined by the WHO & UNICEF as part of the SDG targets.

<sup>d</sup> Total population in this graph and subsequent graphs is about 32 million for national, 20 million for rural, and 12 million for urban. CWSA and GWCL coverage estimates are used in this report and due to overlap of coverage areas, population numbers are about 5 million higher than actual population.

### 1.2.1 Rural and Urban Service Coverage

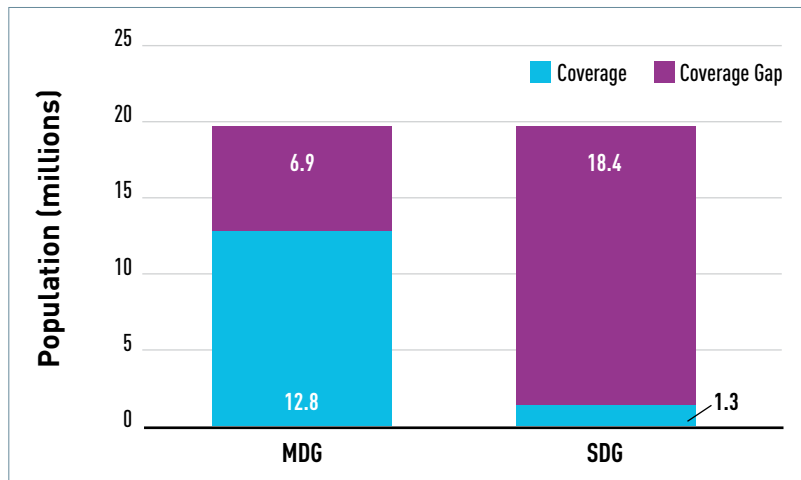
**18.4 million people living in rural areas<sup>a</sup> and 6.7 million people living in urban areas<sup>b</sup> lack access to safely managed drinking water.<sup>3</sup>**

Almost 20 million Ghanaians (predominantly those in rural areas and small towns) are within the operational area of Ghana’s Community Water and Sanitation Agency (CWSA) while 12 million (predominantly urban) are within the Ghana Water Company Limited’s (GWCL) operational area.

*While not exactly equivalent, for the remainder of the report “rural” indicates areas that are CWSA’s responsibility, and “urban” indicates areas that are GWCL’s responsibility.*

Coverage in rural areas remained steady at 64% from 2012 to 2014, with a slight increase to 65%<sup>c</sup> in 2015.<sup>4</sup> This increase was a result of the completion of existing projects in 2015 in rural areas and small towns. The number of people covered is expected to remain about the same in the coming years due to a potential reduction in grant funding<sup>5</sup> to the sub sector as a result of Ghana’s attainment of lower-middle income status.<sup>d</sup> This leaves 6.9 million people in rural areas without access to basic drinking water services, and 18.4 million people in rural areas without access to safely managed drinking water (Figure 3).<sup>6</sup>

**Figure 3.  
Rural Access  
to Drinking  
Water Services  
in 2015**



If the rate of increase in coverage observed between 2012 and 2015 remains the same, universal access to basic drinking water in rural areas will remain an ambitious and unmet goal even after 2030 (Figure 4).<sup>e</sup>

<sup>a</sup> Rural population is based on CWSA coverage area of 19.7 million people. We used JMP estimates for proportion of rural population without access to safely managed drinking water.

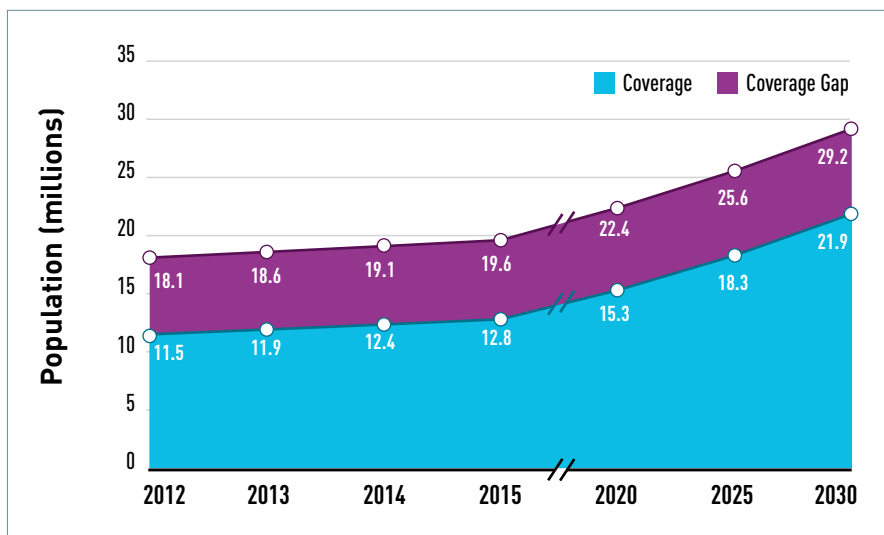
<sup>b</sup> Urban population is based on GWCL coverage area of 12 million people. We used JMP estimates for proportion of rural population without access to safely managed drinking water.

<sup>c</sup> These coverage numbers do not account for water quality and reliability of water systems.

<sup>d</sup> The lower-middle income status of Ghana makes the country unattractive for grants and so the country would have to apply for loans; however, if loans are to be given out, the lender has to make sure that the country could cover the loans but there is no evidence that a high return can be generated in a social service like water.

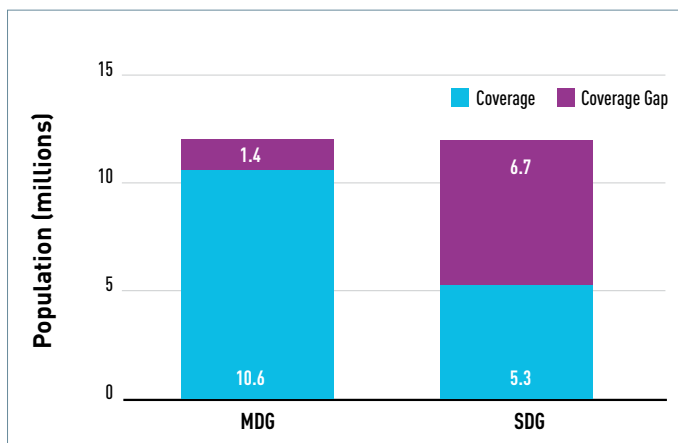
<sup>e</sup> We used Compound Annual Growth Rate (CAGR) to estimate coverage estimates and population estimates. CAGR for coverage was estimated as ~3.5% between 2010 and 2015

**Figure 4.**  
**Projected Trend**  
**in Access in Rural**  
**Areas at Current**  
**Rates of Increase**  
**in Coverage<sup>7</sup>**



In urban areas, populations with access to basic drinking water services increased between 2013 and 2015, with the highest coverage being 88% in 2015, representing 3.5 million additional people covered compared to 2014.<sup>8</sup> This vast increase was a result of the completion of major urban water rehabilitation and expansion works. However, 1.4 million people in urban areas still lack access to basic drinking water services, and 6.7 million lack access to safely managed drinking water (Figure 5). Many of those without access to basic and safely managed drinking water live in peri-urban areas and slums, which are difficult for traditional utilities to reach.

**Figure 5.**  
**Urban Access to**  
**Drinking Water**  
**Services in 2015<sup>9</sup>**



The significant increase in coverage between 2014 and 2015 was inconsistent with previous years; there is insufficient data to determine if this increase occurs periodically or if it was an anomaly. As a result, we do not estimate coverage in future years.

## 1.2.2 Drinking Water Service Providers<sup>ab</sup>

**The public sector—local government authorities or GWCL—directly owns or operates the majority of water systems in Ghana and serves over 23 million of the population. Over the past five years, SWEs have begun to serve an increasing portion of the remaining population. This increase is encouraging, but SWEs are yet to achieve scale.**

While the number of SWE systems has almost doubled in the last year (from 65 to 114 systems), as has the number of people they serve (from 700,000 to 1.1 million), there remains a major portion of the population that is not served. It is projected that 185+ SWEs will provide access to almost 1.4 million people by the end of 2017. Despite this progress, there is a need for a dramatic increase in coverage above current trends.

Details on water service providers are provided in Table 1.

**TABLE 1** Key Water Service Providers in Ghana<sup>cd 10</sup>

Actors	Provision model	Scale of provision in 2016	
		# of systems <sup>e</sup>	# of people served
<i>Urban areas<sup>f</sup></i>			
GWCL	Urban utility	82 systems	10.6 million
<i>Rural areas including peri-urban and small towns<sup>g</sup></i>			
Local Government Plants	Utility	350+ systems	Unknown
Safe Water Network	Micro utility	58+ systems	298,000+
WaterHealth Ghana	Water kiosk	44+ systems	800,000
Project Maji	Water kiosk	3 systems	12,000
Local Government Plants	Utility	35,000+ wells	Unknown
Saha Global <sup>h</sup>	Water businesses	100+ businesses	52,000

Over the past five years, there have been two major players in the SWE sector in Ghana: Safe Water Network (SWN) and WaterHealth Ghana (WHG) that provide safe drinking water populations that have limited access to safe drinking water (Table 2). Although the total number of water points provided by these organizations has increased, no other major SWE players have entered the country. With Safe Water Network implementing 67 SWEs in 96 communities; and WaterHealth launching 47 SWEs, these two organizations – combined – have implemented over 114 SWEs in total in Ghana, providing safe water access to ~150 communities.

<sup>a</sup> For this report, we define drinking water service providers as individuals or organizations that operate water systems that treat and store water and have a distribution mechanism that enables water collection either in-home or outside the home.

<sup>b</sup> Although not included in the definition of drinking water service providers, water provision by tanker trucks and other delivery mechanisms have been substantial enough for GWCL to establish designated collection points where water can be drawn legally, and for the Public Utilities Regulatory Commission (PURC) to develop guidelines for tanker trucks to ensure safe water provision.

<sup>c</sup> This is not an exhaustive list. It focuses on the main providers (CWSA and GWCL) and community water system providers.

<sup>d</sup> Data for additional years are available in the Appendix in Table A1.

<sup>e</sup> Water systems apply mechanical solutions in the abstraction, transportation, treatment and distribution of water.

<sup>f</sup> In addition to GWCL, WaterHealth Ghana and Local Entrepreneurs serve the urban areas; however, data on number of systems and number of people with access to these systems are unavailable.

<sup>g</sup> Local entrepreneurs serve rural areas; however, data on number of systems and number of people with access to these systems are unavailable.

<sup>h</sup> Saha Global's water businesses use local labor to transport water from a dug out for treatment by hand and sale to consumers. There is no use of electricity, pumping or piping.

**TABLE 2** Characteristics of the Two Main SWE Implementers in Ghana

Organization	Safe Water Network	WaterHealth Ghana
<b>Description</b>	Safe Water Network is a <b>non-profit</b> organization that provides safe drinking water to <b>low-income communities in rural areas, including peri-urban</b> . <b>Safe Water Network engages other sector stakeholders to influence policy and attract funding to the sector to enable scale.</b>	WaterHealth Ghana is a <b>for-profit</b> social enterprise that provides safe drinking water to <b>middle and high income</b> communities that have limited access to safe drinking water. WaterHealth Ghana operates primarily in <b>urban areas</b> .
<b>Year founded</b>	2006 (2009 in Ghana)	2006
<b>Number of systems in 2017</b>	67	47
<b>Model</b>	Community enterprises	Enterprises
<b>Brand</b>	H2OME!	dr.water
<b>Price / 20 liters water (Bulk)</b>	USD 0.03–0.09 (GHS 12p–30p)	USD 0.07–0.45 (GHS 30p–200p)
<b>Price / 20 liters water (Packaged)<sup>a</sup></b>	Not applicable	USD 5.70 (GHS 2500p)
<b>Treatment technologies</b>	Limited mechanization and slow sand filtration	Reverse osmosis and ultra-violet filtration
<b>Distribution mechanisms</b>	Standpipes/kiosks, bulk/truck delivery, household connections	Bubble top, standpipes/kiosk

<sup>a</sup> This report does not focus on packaged water produced by SWEs.



### 1.2.3 Populations that SWEs Can Serve

**SWEs could serve 3.2 million people (846 communities)<sup>a</sup> of the 6.9 million in rural areas that lack access to basic water services, on a financially sustainable basis without subsidies. Conservatively, an additional 1.6 million could be served by utilizing subsidies.<sup>b,c</sup> SWEs could also enable many of the 11.5 million people in rural areas with basic drinking water services to upgrade to safely managed services.<sup>d</sup>**

SWEs can reach those who are not served by either traditional urban infrastructure or basic technologies such as handpumps that typically reach remote villages with limited economic activity. SWEs could potentially serve 4.8 million people; this still leaves 2.1 million people in rural areas without access to basic drinking water. There is insufficient data to estimate the number of people that have access to basic services but lack access to safely managed drinking water that SWEs can serve; however, we anticipate SWEs can serve millions of this population. This number will be estimated in subsequent Sector Review reports.

SWEs could also reach a portion of 1.4 million people in urban areas that currently lack access to basic drinking water services.<sup>e</sup> However, these are within the GWCL operational service areas. While we see potential for SWEs to supplement water provision by utilities, GWCL's area is exclusively served by the utility. The estimated market for SWEs in rural areas and small towns is shown in Table 3.

**TABLE 3** Market Size for SWEs in Rural Ghana, 2015<sup>f,g</sup>

Area	Total	Total without access to basic	Total without access to safely managed <sup>h</sup>	Market size for SWEs without subsidies	Additional market size for SWEs with subsidies	Total market for SWEs	SWE market as percent of Total	SWE market as percent of Total without access to basic
Communities	25,890	9,216	Not available	846	1,458	2,304	8.9%	25%
Population	19,718,525	6,892,847	Not available	3,200,761	1,625,085	4,825,846	24.5%	70%

<sup>a</sup> We calculated number of communities and the total population from CWSA data as at 2015 using population in communities greater than 1500 population. This is the lowest population that could cover operating costs.

<sup>b</sup> Subsidies will include providing initial startup and allocation for ongoing operational and maintenance costs.

<sup>c</sup> This figure is the population of communities with population between 700 and 1500 that are currently not served by CWSA. We used a threshold of 700 because that is the minimum populations size and SWE with subsidy can serve

<sup>d</sup> A precise estimate of how many people SWEs could upgrade from basic to safely managed water supply will presented in the 2018 Ghana Sector Review.

<sup>e</sup> While SWEs could make an important contribution in urban areas, its application needs to be done in close collaboration with GWCL for urban areas.

<sup>f</sup> Computation by Safe Water Network, using CWSA water coverage database, 2016, and Safe Water Network viability criteria.

<sup>g</sup> Data available by region in the Appendix in Table A2.

<sup>h</sup> There is insufficient data to estimate the number of people that have access to basic services but lack access to safely managed drinking water that SWEs can serve; however, we anticipate SWEs can serve millions of this population. This number will be estimated in subsequent Sector Review reports.

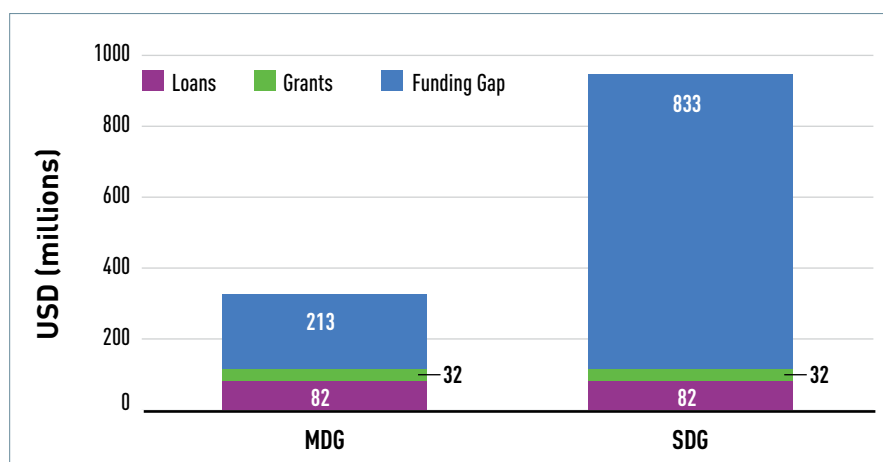
### 1.3 Financial Requirements to Achieve Universal Access

**Capital costs of USD 327 million are required annually to achieve universal access to basic water services by 2025, according to Ghana's Water Sector Strategic Development Plan (2012-2025). To achieve universal access to safely managed instead of basic drinking water in Ghana by 2030, annual capital cost requirements are estimated to nearly triple to USD 946 million.**

Loans and grants to the water sector in 2015 from Development Partners to the GoG amounted to USD 114 million, leaving a funding gap of USD 213 million for 2015.<sup>a</sup> This gap is anticipated to increase due to a projected decrease in funding to Ghana as a result of Ghana's attainment in 2010 of lower-middle income status.

Using unit capital cost estimates for Ghana from Hutton and Varughese (2016),<sup>11</sup> we estimate an annual funding requirement of USD 946 million<sup>b</sup> to achieve universal access to safely managed drinking water services by 2030 using piped on premises technology. This leaves a funding gap of USD 833 million annually, assuming the USD 114 million available funding in 2015 continues annually (Figure 6). However, these costs assume that people go straight from having no access to having piped water on premises. In reality, a portion of those without access will first obtain basic drinking water service before moving up to safely managed drinking water. This incremental move from no access to safe access within 30 minutes to safe access on premises is estimated to require more funding than moving straight from no access to safely managed access. These additional costs are not included in our estimates.

**Figure 6.**  
Annual Funding Required to Achieve MDG and SDG Targets<sup>12</sup>



The majority of funding for the water sector is from grants and loans from Development Partners to the GoG; this suggests either limited attempts or a failure to leverage funding from other sources, including the private sector. SWEs can attract new sources of funding to the water sector as it is a relatively new service delivery mechanism in Ghana.

<sup>a</sup> The Ghana water sector has other sources of funding besides grants and loans. However, they are not well tracked or reported, and are likely relatively small compared to grants and loans.

<sup>b</sup> This was estimated based on piped on plot technology and accounting for population growth based on United Nations population prospects estimate. We assume that additions to the population through population growth do not have access and so move from no access to safely managed access.

## 1.4 The Role of SWEs in Addressing Funding Gaps and Achieving Universal Coverage in Ghana<sup>a</sup>

Achieving universal access to basic water services in Ghana by 2025 (GoG's vision) requires annual funding of USD 327 million (GHS 1.44 billion).<sup>b,c</sup> There is currently an annual funding gap of USD 213 million to reach this target. To provide safely managed drinking water to every person in Ghana by 2030, in alignment with the Sustainable Development Goals (SDGs), requires annual funding of USD 946 million,<sup>d</sup> resulting in an even higher funding gap of USD 832 million per year. This presents a significant challenge for the water sector and water service providers in Ghana.

**Small Water Enterprises can help to address this challenge in three ways:**

**(1) provide reliable, affordable safe water access to underserved off-grid communities:**

SWEs can serve 3.2 million of the 8.3 million people that lack access to basic water services, without subsidies, at an annual cost of USD 35 per person.<sup>e</sup> An additional 1.6 million<sup>f,g</sup> can be served with subsidies. SWEs can also enable many<sup>h</sup> of the 14.8 million people with basic water services to upgrade to on premises, safely managed services.

**(2) increase sustainability by reducing system failures:**

For a one-time capital investment of USD 100,000, a small water enterprise can operate indefinitely with ongoing operating and maintenance costs covered by user tariffs. The low failure rates of SWEs, due to their business model, ensure reliable and sustainable access to safe water for Ghanaians, and greatly reduce the likelihood of lost investments in systems.

**(3) attract new funding from the private sector, social impact investors, and entrepreneurs:**

We estimate SWEs could attract USD 25–30 million toward the USD 112 million required to serve 3.2 million people with SWEs.

<sup>a</sup> Cost and population figures in this and following sections are based on Safe Water Network analysis using data provided by Ghanaian ministries and agencies, and data from Safe Water Network programs.

<sup>b</sup> Capital cost requirements to achieve universal access to basic level of drinking water service.

<sup>c</sup> We used an exchange rate of GHS 4.4 = USD 1, which was accurate at the time this report was released. It is important to note that the exchange rate varies dramatically due to inflation in Ghana, ranging from 1.9–4.7 in the last five years. For the remainder of this report, we will only present costs in USD, and all currency conversions used the 4.4 GHS/USD exchange rate.

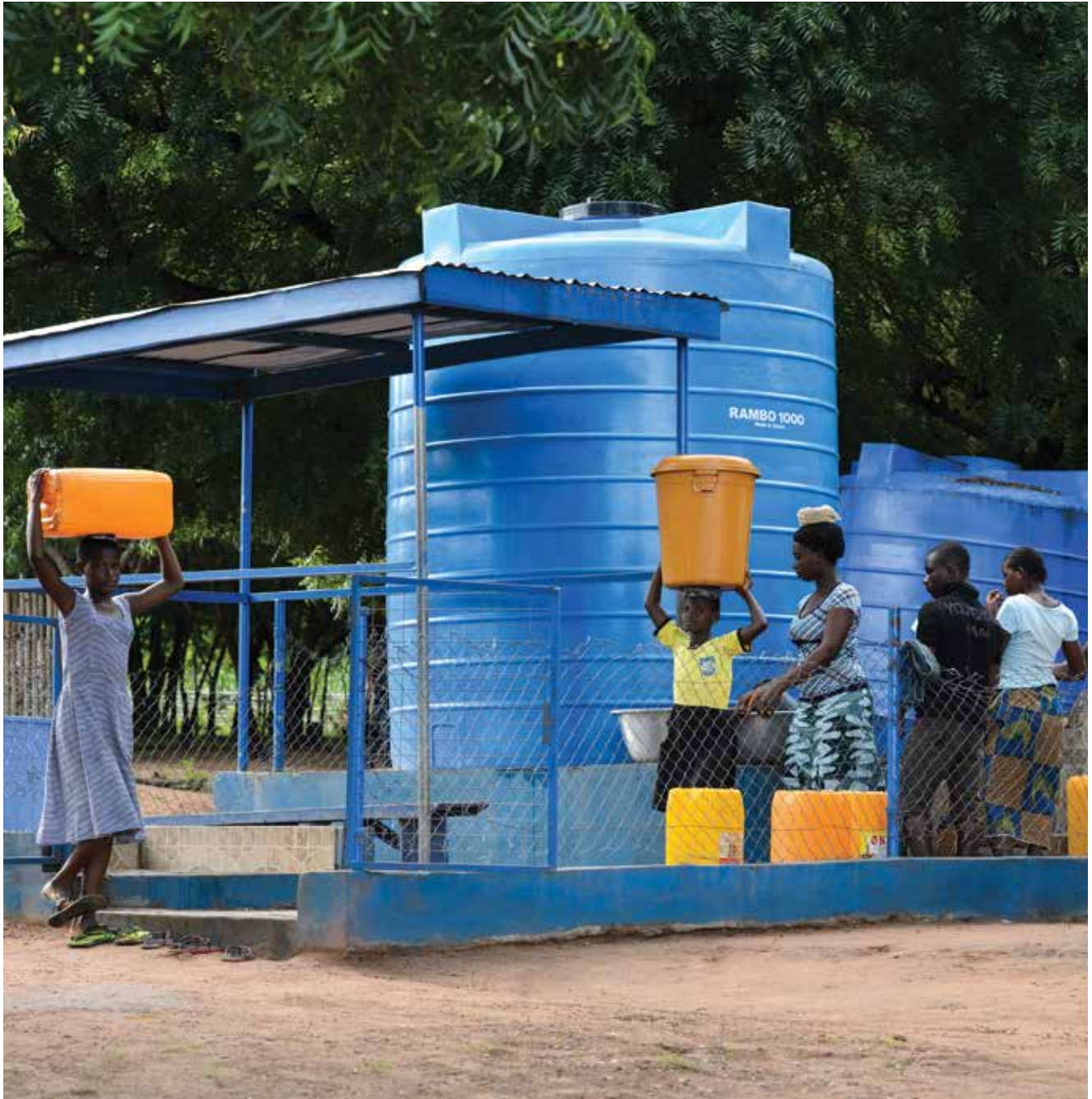
<sup>d</sup> Capital cost requirements to achieve universal access to safely managed level of drinking water service, specifically, piped water on premises.

<sup>e</sup> Please see section 2.1 for assumptions made.

<sup>f</sup> This figure is the population of communities with population between 700 and 1500 that are currently not served by CWSA. We used a threshold of 700 because that is the minimum population size that SWE can serve with subsidies.

<sup>g</sup> Costs to reach the additional 1.6 million will be estimated in subsequent reports.

<sup>h</sup> Number to be estimated in subsequent Sector Reviews.









## 2. FINANCIAL PROPOSITION FOR SMALL WATER ENTERPRISES

It is important to understand the financial proposition for Small Water Enterprises and how they can help close the funding gap in Ghana's water sector. We look at three essential and related components of the financial proposition:

- (1) **Capital and Start-up costs:** what is required to *set up* a small water enterprise?
- (2) **Operational costs:** what is required to *keep* a small water enterprise operating sustainably?
- (3) **Revenues:** what are the revenues from water sold by SWEs that cover the operational costs?

### 2.1 Capital and Start-up Costs for Small Water Enterprises

The initial investment required to launch a small water enterprise in Ghana is comprised of both capital costs (approximately USD 62,000) and start-up costs (USD 38,000) for a total initial investment required of USD 100,000<sup>a</sup> or USD 35 per capita<sup>b</sup> over the life of the system. This cost includes the cost of the plant,<sup>c</sup> cost of the land, building and grid connections, as well as programming costs like consumer activation, and indirect costs and management fees.

Based on the total capital investment per SWE, the capital investment required to serve 3.2 million people with SWEs is estimated at USD 112 million. A substantial part of the gap of 23.1 million people using the SDG target could also be served by SWEs; cost estimates for the additional population will be provided in subsequent reports.

### 2.2 Operational Costs

To keep a SWE operating requires covering operating costs (both fixed and variable), paying a fee for technical services *and* building a maintenance reserve for large repairs and replacements.<sup>d</sup> Table 4 below shows an annual cash flow for a water station<sup>e</sup> serving a community of 3,000 people.

**TABLE 4** Average Annual SWE Cash Flow over 25 Years of Operation, in USD (assuming increased penetration between the first time period and the second in a community of 3,000 people)<sup>f</sup>

	Average (USD), Year 1-8	Average (USD), Year 9-25
<b>Revenue<sup>g</sup></b>	8,300	13,000
<b>Operating expenditure</b>	7,500	10,000
Fixed costs	3,500	3,500
Variable costs <sup>h</sup>	4,000	6,500
<b>Gross Profit</b>	800	3,000
Maintenance reserve contribution	1,800	1,800
<b>Net profit</b>	(1,000)	1,200

<sup>a</sup> This cost does not include costs of household connections.

<sup>b</sup> We estimate that the minimum population an SWE can serve and be financially viable (by covering operation and maintenance costs) is 3,000, thus these estimates are based on an SWE serving a 3,000 person town. Per capita cost is USD100,000/3,000 = USD-35 per person.

<sup>c</sup> This is based on the costs of either a limited mechanization system with chlorine treatment or a system with slow sand filtration.

<sup>d</sup> Capital costs should be recovered, where feasible; however, the focus here is on recovering operating costs.

<sup>e</sup> This is based on Safe Water Network stations.

<sup>f</sup> Safe Water Network Projections based on 35 stations with 1-4 years of operating data.

<sup>g</sup> Revenue increases as a result of an increase in the number of people using SWE provided water.

<sup>h</sup> Although variable costs increase, per capita costs will decrease from the first time period to the next because of an increase in the number of consumers.

For a system located in a community of 3,000 people, SWEs are projected to breakeven with full costs required for long term sustainability covered within eight years of operation. Fixed costs (e.g. salaries, water quality testing, insurance, and technical and management services) represent nearly 47% of revenue while variable costs (such as consumables, utilities, repairs) represent an additional 48% on average during the first eight years. The remaining gross profit contributes, but is insufficient, to cover the required annual contribution to a Maintenance Reserve for capital equipment repair and replacement.

As the SWE matures, sales volumes increase as a result of growth in household penetration. (We assume 75% penetration after 8 years and increased consumption for existing consumers). Between years 9 and 25, SWE revenues are projected to reach a critical threshold such that the SWE benefits from economies of scale that result from higher production volumes. The fixed costs are expected to comprise only 27%, and variable costs 50%, of revenues. Although absolute variable costs increase, per capita costs between years 9 and 25 are lower than per capita costs between years 1 and 8 because of the increase in penetration. The resulting gross profit is sufficient to cover the Maintenance Reserve contribution requirement and leave a 9% net profit, which can go towards a community dividend, capital expansion, and/or investment returns.

This model prioritizes safeguarding against system failure above repayment of capital cost; however, the appropriateness of the model is dependent on the size of the community being served. Cost recovery is facilitated when the communities are large enough to generate enough revenue to recover operating costs. The SWE operating model is being actively optimized to reduce operating costs and increase revenue potential in order to maximize the financial proposition.

## 2.3 Revenues

The key driver of revenues is volume, and volume is a function of community size (population), consumer penetration, and per capita consumption. While there is little that can be done to increase the size of the community, marketing programs (messaging and promotions) to activate consumer demand, and pricing (balancing financial viability and affordability) can be used to increase penetration and per capita consumption. In addition, improving convenience through additional kiosks or home delivery, ATMs, or household connections can also increase volumes. These changes and upgrades to a SWEs distribution system would likely incur additional costs not included in the above estimates, which could be financed by consumers paying for their household connections, spending from reserves, or leveraging alternative sources of financing.

There are a range of prices for water provided by SWEs in Ghana. Prices depend on the area/market served (rural, urban), treatment technology, implementation model/organization, and distribution mechanism used.

Appropriate and affordable pricing is central to achieving inclusion of consumers of various socioeconomic levels and financial viability for SWEs. UNDP suggests that household costs for the estimated minimum amount to meet all water needs (suggested to be 20 L per capita per day) should not exceed 3% of household income to qualify as affordable.<sup>13</sup> For the population in the lowest income quintile in Ghana, this means that per capita water costs should not exceed USD 0.02 a day based on an annual per capita income of USD 262 for the lowest income quintile.<sup>14</sup> Based on this, water provided by SWEs that serve the rural population in Ghana at a cost of USD 0.03 is affordable for those in the lowest income quintile group and more affordable than bottled water and sachet water. In urban areas, where income is comparatively higher, water is priced based on assessments of the market (Table 5). In 2016, one SWE<sup>a</sup> organization increased prices to adjust for inflation and ensure continued financial viability of water systems. Despite this increase, prices for water provided by SWEs are still significantly lower than bottled and sachet water. Pricing will likely need to increase over time to keep up with rising costs of energy and other inputs. SWEs have rolled out innovative approaches like the use of solar panels to reduce costs and keep prices affordable for communities.

**TABLE 5** Market Price for Water in Rural and Urban Areas, Ghana<sup>b</sup>

Setting	2017 prices per 20 liters	
	Rural and small towns	Urban
<b>Safe Water Network</b>		
Plant (Main Station)	USD 0.03 (GHS 12p)	N/A
Kiosk (Sub Station)	USD 0.03 (GHS 12p)	N/A
Truck Delivery (SWN)	USD 0.09 (GHS 40p)	N/A
<b>WaterHealth Ghana</b>		
using Ultraviolet treatment	USD 0.07 (GHS 30p)	N/A
using Reverse Osmosis	N/A	USD 0.45 (GHS 200p)
Bubble top (WHG)	N/A	USD 5.70 (GHS 2500p)
<b>Local Government Plants</b>	\$0.02 (GHS 10p)	N/A
<b>Packaged water</b>		
Bottled water	USD 7.58 (GHS 3333p)	USD 7.58 (GHS 3333p)
Sachet	USD 1.02 (GHS 450p)	USD 1.02 (GHS 450p)
Tanker <sup>15</sup>	USD 0.05 (GHS 20p)	USD 0.05 (GHS 20p)
GWCL	N/A	USD 0.01 (GHS 5p)

<sup>a</sup> Prices increased in communities served by Safe Water Network Stations. Safe Water Network is the organizational author of this report.

<sup>b</sup> Data available for additional years in the Appendix in Tables A3 and A4.



## 3.FUNDING SWEs: ATTRACTING MORE CAPITAL

**Historically, development agencies have played an important role in funding water initiatives in Ghana. With Ghana's shift in 2010 from low-income to lower-middle income, it is anticipated that development agencies will gradually reduce grant funding to the country. A diverse set of financing mechanisms are critical to ensure funding requirements are met.**

**The SWE model attracts a diverse group of funders.** Governments and development agencies are interested in health and social impact while other non-traditional funding sources such as venture philanthropists, quasi-government agencies and private investors may be interested in components of the proposition, such as investing in household connections. One new entity which is under development, the Ghana Water Enterprise Trust, can provide the governance and structure required to attract financing from the public and private sectors. The work to develop this entity is currently underway.<sup>16</sup>

With 90% of funding for SWEs estimated to come from development agencies and foundations and these groups of funders anticipated to reduce funding to Ghana, there will be a large funding gap for SWEs in the country. We expect some portion of this gap to be addressed as the government increases funding to SWEs as a means of implementing the Water Sector Strategic Development Plan (WSSDP) which recognizes the need for decentralized systems. Additionally, we expect the Ghana Water Enterprise Trust, (currently in development) to attract funding from the private sector and other funders. Below is an assessment of how the mix of funding will shift from predominantly development agencies and foundations to include the private sector. (Table 6)

**TABLE 6** Current and Projected Funding of SWEs in Ghana<sup>17</sup>

Funder type	Type of facility	Estimated current funding sources for SWEs	Estimated potential funding sources for SWEs
<b>Institutional Funding</b>			
Development Agencies	Grant	50%	20%
Foundations	Grant	40%	20%
Corporate Social Responsibility –Companies	Grant	0%	5%
<b>Government Funding/Financing</b>			
Central Government	Grant/Investment	10%	40% <sup>a</sup>
<b>Individual Financing</b>			
Private Sector (Entrepreneurs/suppliers/etc.)	Investment	0%	10%
Social Impact Investors/ Venture Philanthropists	Investment	0%	10%

<sup>a</sup> This target of getting the GoG to invest 40% of funding required for SWEs is an ambitious goal but government's increased interest in co-funding/financing social infrastructure projects could make this target achievable.



The key to attracting private sector and hybrid funding is that SWEs are self-sustaining operating entities that create incentives and benefits for a range of players along the value chain. This is a very different proposition than investing in one-time infrastructure. With a viable financial proposition, SWEs not only generate sufficient revenue to cover costs and technical and maintenance requirements, but they may also generate profits that can contribute to capital recovery and investor repayment. Certain specific components of the enterprise create opportunities for investment, and therefore attract public-private partnerships and private sector investors, resulting in incremental capital to the sector. For example, household connections may provide opportunities for financing and investment. Further work is required to understand what components will be best suited to attract commercial investment.

The estimates for funding required to achieve universal access do not include operational and maintenance costs, which are covered by water tariffs. SWEs minimize the potential for lost investments due to failures since SWE water tariffs cover operational expenses and contribute to a maintenance reserve for replacement of systems after end-of-life and for large repairs. However, water tariffs for other water systems do not always cover operational expenses which contributes to high failure rates of systems. Out of 45 African utilities studied, only four (8%) had average tariffs which were high enough to cover operation and maintenance cost and partial capital cost.<sup>18</sup>

Since SWEs, by contrast, cover operating costs and build a maintenance reserve, they have greater potential to use funding more efficiently as is demonstrated by low failure rates of SWEs in Ghana and can attract private sector funding since cost recovery is facilitated if population served is large enough.<sup>a</sup>

With the funding required to achieve universal access in Ghana, and the potential SWEs have to reduce the current funding gap and contribute to the SDGs, it's important to map out solutions to addressing the barriers to scale.

<sup>a</sup> SWN supported stations have a failure rate of 2%; only 1 station has ever been decommissioned.





## 4. SCALING UP SWEs IN GHANA

### 4.1. Barriers to Scaling up SWEs

**With an operating footprint of 100+ small water enterprises in all 10 regions of Ghana, SWEs have demonstrated the ability to deliver affordable and reliable safe water access in rural areas including small towns and peri-urban areas. Still, many barriers to their development and growth remain.**

Ghana's National Water Policy, launched in 2007, assigns responsibility for urban water provision to GWCL, and rural and small towns' water provision to Local Government Authorities (District Assemblies) with facilitation support by CWSA. Although the policy supports SWEs and private sector participation (with approval from Government agencies), there remain barriers to SWE growth such as pricing/tariffs; financing, market segmentation/coverage agreements, exclusivity, and lack of regulations (Table 7).

**TABLE 7** Barriers to growth of SWEs

	BARRIER	ISSUE(S)	RISK TO SWE GROWTH
Policy and Enabling Environment Requirements	1. Exclusivity	Current policy grants exclusivity to GWCL and District Assemblies	Hinders private sector investment in start-up capital for SWEs
	2. Service level benchmarks	Absence of service level benchmarks for SWEs	Reduces the reliability of SWEs
	3. Pricing/tariffs	Current pricing/tariff regime requires approval from the public sector, which is a competitor	Does not allow for recovery of investment capital to be included in the tariff
Small Water Enterprise Requirements	4. Consumer demand	Limited consumer demand for and acceptance of SWEs	Insufficient revenue to cover O&M costs will impact financial viability
	5. Capacity	Limited managerial, technical, and financial management capacity of operators Limited availability of technicians for large scale repairs	Hinders effective operations, sustainability, and financial viability of SWEs
Scale Execution Requirements	6. Financing	No clear funding mechanism for supporting SWEs	Makes it difficult for SWEs to attract capital for investment in new systems
	7. Market mapping	Overlap in operational areas of CWSA and GWCL Lack of criteria for SWE-appropriate communities	Makes it difficult to identify areas that could be served by SWEs Could lead to setting up SWEs in areas not appropriate for SWEs
	8. SWE Implementers	Lack of implementing organizations	Reduces the number of SWEs that can be set up at any given time



## 4.2 Ongoing Activities that are Addressing Barriers to SWE Scale-up

**Players in the SWE sector in Ghana have developed and implemented effective approaches to impact the barriers that hinder the growth of SWEs.**

The GoG is developing a new five-year strategic plan for Ghana's water and sanitation sector. The plan will, among other things, focus on creating an enabling environment for public private partnerships and increased investment in water supply in peri-urban water supply. This could potentially support development of SWEs. In addition, innovative approaches are being developed to improve cost-effectiveness, keep prices affordable for the poor while ensuring financial viability and sustainability, and attract funding to the sector. Some examples include:

- **Solar:** the use of solar panels to minimize electricity costs and improve financial viability of SWEs;
- **Any Time Water Machines (ATMs):** the introduction of ATMs to increase convenience of water collection, thereby increasing consumer access and penetration;
- **Ghana Water Enterprise Trust:** the Trust, an entity (in development) that can provide the governance and structure required to attract financing from the public and private sectors;
- **Pre-Paid Meters:** the introduction of prepaid meters for household connections to reduce the high operational cost of revenue collection, reduce default rate, and improve system financial viability and revenue predictability;
- **Mobile money:** testing the potential of mobile money integration into water sales to reduce transaction costs and improve revenue mobilization for SWEs.

### 4.3 The Opportunity for Small Water Enterprises

**The GoG has prioritized safe water for all and there is a growing interest in public private partnerships. This presents an opportunity for SWEs to make significant contributions to the water sector in Ghana.**

According to the Water Sector Strategic Development Plan (WSSDP) for 2012-2025, the GoG's vision for the country is sustainable water for all by 2025. GoG realizes that to achieve this vision, decentralized service delivery is needed and appreciates the contributions made by secondary and tertiary service providers. Specifically for peri-urban and low-income communities, where SWEs are most appropriate, one of the viable management options being considered are private operator management of a water facility, such as a small water enterprise. GoG has also developed a framework for private sector participation in the water sector that defines measures to encourage private sector participation in water service delivery. The strategies and plans outlined in the WSSDP illustrate the opportunity for SWEs to contribute to GoG's vision of sustainable water for all by 2025.







## 5. RECOMMENDATIONS FOR SCALING UP SWEs

**SWEs need a clearly defined action plan to realize their potential and maximize their contribution to universal access in Ghana.**

**In consultation with governments, donor agencies, other SWE implementers, and other key stakeholders, we identified the barriers listed in the preceding section and mapped out recommendations to overcome those barriers to catalyze the growth of SWEs in Ghana. Scaling up SWEs requires changes to policy reforms and operational and management strategies to overcome the barriers that exist.**

For each recommendation where efforts are underway, we identify these efforts to overcome the barriers. Each recommendation is paired with the barrier in Table 7 that it addresses.

**1. Allow other organizations, in addition to the Ghana Water Company Limited and the District Assemblies, to operate water systems** in urban and rural areas, respectively to open up the market to the private sector.

Permitting other organizations, with the required capability, to operate water systems in Ghana will catalyze coverage and improve reliability of water systems in the country. Currently, CWSA plays the role of a facilitator in the rural water sector, providing technical assistance to District Assemblies (DAs) on installation, operation and management of water systems. However, DAs require additional capabilities and resources to manage water systems and reduce the high sector failure rates of systems. Additionally, rural water sector regulation should be assigned to Ghana's Public Utilities and Regulatory Commission, which currently regulates the urban water sector. This will ensure compliance with water sector rules and regulations.

**2. Establish service-level benchmarks** for SWEs to guide effective operations and ensure sustainable provision of safe drinking water. These should include standards for water quality, operations, water system safety, and financial management. The government is developing a new water sector plan based on the SDGs; this can be a foundation for the benchmarks for SWEs. State and National Government should lead this effort but SWEs should participate in the process.

**3. Establish pricing policies** for SWE water tariffs to ensure they are sufficient to cover not only day-to-day operational and maintenance costs but longer term maintenance and repair requirements, and, where feasible, capital recovery; adopt a system to ensure these policies are enforced. The current pricing framework covers OpEx and maintenance costs which enables sustainability of systems; however, these are not always enforced. Also, the pricing formulae should be reviewed to include recovery of invested capital and cost of capital to encourage private sector investment in the water sector. This will ensure competitive pricing by SWEs along with all other water service providers. Currently, the government intends to convert CWSA into a utility/ service provider. This might necessitate transfer of ownership and operations of water systems from Local Government Authorities to CWSA, and responsibility for tariff setting assigned to Local Government Authorities or the Public Utilities Regulatory Commission. Ghana's Public Utilities Regulatory Commission should be assigned responsibility for reviewing and approving tariffs for all water services providers including SWEs.

**4. Implement consumer marketing programs** to build consumer demand for safe water, leveraging sector research to understand consumer needs and behavior. This will facilitate the design of systems and innovations that meet consumer demands, increase penetration, contribute to financial viability of systems, and ultimately improve health and livelihoods. In August 2017, Safe Water Network launched a standardized semi-annual consumer tracking study in Ghana to understand knowledge, attitudes, behaviors, and practices of consumers and non-consumers. There is an opportunity to expand the study to cover other communities and SWE organizations across Ghana so that we can understand how to best meet the needs of diverse consumers across various socioeconomic and regional populations.

**5. Conduct trainings and other capacity building activities and develop and standardize an open-source digital platform** that contains the tools, resources and practices to facilitate large-scale replication. Safe Water Network Ghana is incubating a local technical service provider for its stations, and could potentially provide managerial and other support services to other water systems and players. Additional efforts are needed to facilitate the development of the open-source digital platform that will enable easy sharing of tools and lessons learned for effective management of SWEs. This effort should be led by SWEs.

**6. Map out financing opportunities, (who the funders are, and the type of funding provided, e.g. grant, investment, lending) and strengthen financial stewardship** of existing investments to attract additional capital to the sector from multiple sources to support long term viability and replication of SWEs. Sector stakeholders need to identify where the funding opportunities for SWEs are to enable effective strategies to draw on these opportunities. GoG, along with other stakeholders, is working with SWN to launch a Ghana Water Enterprises Trust to attract blended financing and provide governance and stewardship for SWEs. This needs to continue to be a collaborative effort (government, SWEs, other sector players) to ensure it can operate sustainably within the policy environment, and attract the financing required.

**7. Complete a mapping of the water supply market to understand where SWEs are most appropriate and improve monitoring mechanisms to develop accurate water coverage data.** This will facilitate setting up of SWEs in communities where they can be most cost-effective. This requires improved monitoring of coverage areas in Ghana to obtain accurate information on coverage, reliability, and quality of drinking water. Ghana's Public Utilities Regulatory Commission should work with the Ministry of Sanitation and Water Resources to appropriately segment the market. Additionally, SWEs, in collaboration with other stakeholders, need to develop criteria that detail factors (environmental, socio-economic, population size, regulatory, etc.) of communities that make them appropriate for setting up SWEs.

**8. Develop a marketing program to increase visibility of the benefits of SWEs and attract implementing organizations to the SWE sector** to enable growth and expansion of SWEs in Ghana. With only 2 main SWEs in Ghana, expansion of SWEs across Ghana would be difficult. Additional implementing organizations are needed to facilitate scale up of SWEs. The proposition should be attractive to entrepreneurs who have the capability to bring to the sector. We need to communicate the benefits of SWEs to entrepreneurs to attract additional organizations and interest.

To transform these recommendations into action requires collaboration among the public and private sectors to build consensus and map out a process and timeline for implementation. We will share these recommendations with the SWE Working Group<sup>a</sup>, established to facilitate this dialogue among sector players and mobilize funding for the sector, and, develop a roadmap for moving these recommendations forward in collaboration with sector stakeholders.

<sup>a</sup> The charter for the SWE Working Group is presented in the Appendix. This charter includes members of the Working Group.

## 6. CONCLUSION

A total of 8.3 million people in Ghana lack access to even basic drinking water services, and 23.1 million lack access to safely managed services. The bulk of those without access live in rural areas and small towns. Current trends in coverage will not meet the 2030 SDG target of universal coverage. Additionally, estimated funding requirements to meet universal access are much higher than current and projected funding of the water sector.

Small Water Enterprises can help address these challenges in the Ghana water sector. SWEs add value to the Ghana water sector in the following ways:

- Initial investment in SWEs buys a sustainable system, without needing recurring external financial support.
- Water services provided by SWEs are high quality and can meet SDG safely-managed standards in some cases, as SWEs are a business so must provide a marketable product.
- SWEs can operate in hard-to-reach areas where traditional provision models struggle, as they are decentralized and don't depend on a major utility to operate.
- SWEs have demonstrated success, and have increased exponentially in number and population served in recent years.

## 7. APPENDIX

### 7.1 Additional Data

**TABLE A1 Key Water Service Providers in Ghana<sup>a 19</sup>**

Players	Provision model	2015		2016		2017 projected	
		# of systems	# of people served	# of systems <sup>b</sup>	# of people served	# of systems	# of people with access
<i>Urban<sup>c</sup></i>							
<b>GWCL</b>	Urban utility	82 systems	7.1million	82 systems	10.6million	82 systems	11million
<i>Rural areas including Peri-urban and Small Towns<sup>d</sup></i>							
<b>Local Government Plants</b>	Utility	350 systems	2.6 million	350+ systems	N/A	350+ systems	N/A
<b>Safe Water Network</b>	Micro utility	35+ systems	203,400	58+ systems	298,000+	100+ systems	375,000
<b>WaterHealth Ghana</b>	Water kiosk	30+	500,000	44+ systems	800,000	85+ systems	1million
<b>Project Maji</b>	Water kiosk	2 systems	8,000	3 systems	12,000	5+ systems	15000+
<b>Local Government Plants</b>	Utility	28000+wells	8 million	35,000+ wells	N/A	37,000+ wells	N/A
<b>Saha Global<sup>e</sup></b>	Water businesses	N/A	35,000+	100+ water businesses	52,000	100+ water businesses	N/A

**TABLE A2 Market Size for SWEs in Rural Areas, by Region<sup>20</sup>**

Region	Region Population	Market Size for SWEs without subsidies	Additional Market Size for SWEs with subsidies	Total Market Size for SWEs	SWE Market Size as % of Region Population
Ashanti	3,554,478	678,224	197,963	<b>876,187</b>	<b>24.7%</b>
Brong Ahafo	2,213,102	377,934	185,013	<b>562,947</b>	<b>25.4%</b>
Central	2,270,882	467,821	185,834	<b>653,655</b>	<b>28.8%</b>
Eastern	2,274,269	374,523	233,399	<b>607,922</b>	<b>26.7%</b>
Greater Accra	860,235	179,374	75,159	<b>254,533</b>	<b>29.6%</b>
Northern	2,552,529	346,252	214,084	<b>560,336</b>	<b>22.0%</b>
Upper East	1,420,657	200,854	126,524	<b>327,379</b>	<b>23.0%</b>
Upper West	726,613	27,670	43,756	<b>71,426</b>	<b>9.8%</b>
Volta	2,135,471	236,908	155,376	<b>392,284</b>	<b>18.4%</b>
Western	1,710,289	311,201	207,976	<b>519,177</b>	<b>30.4%</b>
<b>All Ghana</b>	<b>19,718,525</b>	<b>3,200,761</b>	<b>1,625,085</b>	<b>4,825,846</b>	<b>24.5%</b>

<sup>a</sup> This is not an exhaustive list. It focuses on the main providers (CWSA and GWCL) and community water system providers.

<sup>b</sup> Water systems apply mechanical solutions in the abstraction, transportation, treatment and distribution of water. This includes stations and substations.

<sup>c</sup> In addition to GWCL, WaterHealth Ghana and Local Entrepreneurs serve the urban areas; however, data on number of systems and number of people with access to these systems are unavailable.

<sup>d</sup> Local entrepreneurs also serve rural areas; however, data on number of systems and number of people with access to these systems are unavailable.

<sup>e</sup> Saha Global's water businesses use local labor to transport water from a dug out for treatment by hand and sale to consumers. There is no use of electricity, pumping or piping.

**TABLE A3 Market Price for Water in Rural and Small Towns, Ghana**

	2015 prices per 20L (USD)	2016 prices per 20L (USD)	2017 prices per 20L (USD)
<b>Safe Water Network</b>			
Plant (Main Station)	0.02	0.03	0.03
Kiosk (Sub Station)	0.02	0.03	0.03
Truck Delivery (SWN)	0.07	0.09	0.09
<b>WaterHealth Ghana</b>			
using Ultraviolet treatment	0.05	0.05	0.07
<b>Local Government Plants</b>	0.01	0.02	0.02
<b>Packaged water</b>			
Bottled water	N/A	7.58	7.58
Sachet	N/A	1.02	1.02
Tanker <sup>21</sup>	N/A	0.05	0.05

**TABLE A4 Market Price for Water in Urban Areas, Ghana**

	2015 prices per 20L (USD)	2016 prices per 20L (USD)	2017 prices per 20L (USD)
<b>WaterHealth Ghana</b>			
using Reverse Osmosis	0.07	0.45	0.45
Bubble top (WHG)	N/A	5.70	5.70
<b>Packaged water</b>			
Bottled water	N/A	7.58	7.58
Sachet	N/A	1.02	1.02
Tanker <sup>22</sup>	N/A	0.05	0.05
<b>GWCL</b>	0.01	0.01	0.01

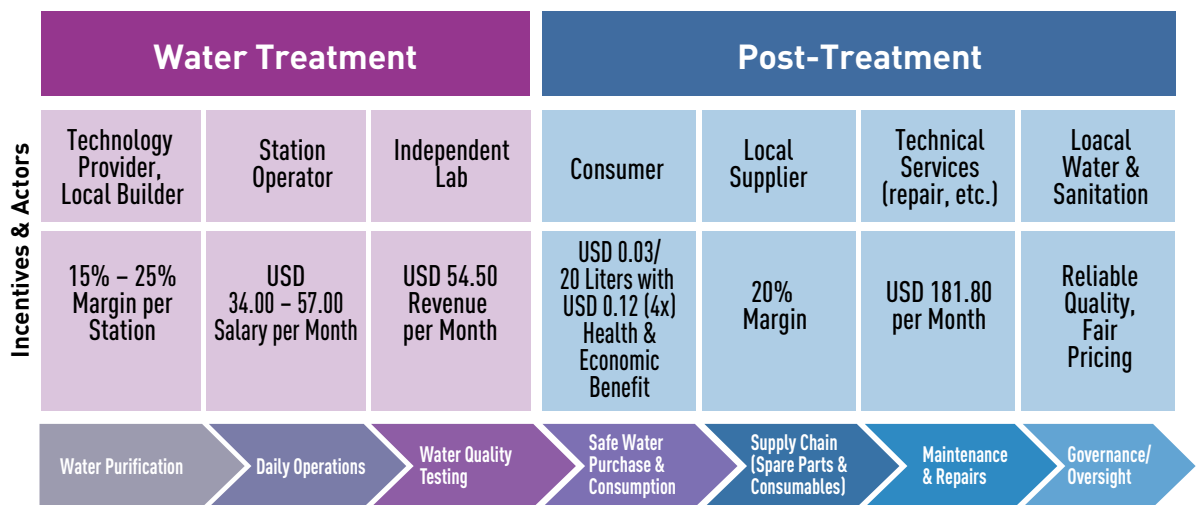


## 7.2 Small Water Enterprise Value Chain

**Beyond creating value for communities through the provision of safe drinking water, SWEs create value for different actors involved in water service provision through income and job-generation.**

SWEs create value for multiple actors in the chain of inputs and services needed to deliver reliable, convenient and safe water access, as illustrated in Figure A1. Actors include contractors, operators, lab technicians, consumers, technical services and local Water and Sanitation Management Teams. These market participants create value through provision of goods and services that deliver safe water; in return, they receive compensation through income from their goods and services or through employment.

**Figure A1. SWE Value Chain<sup>a</sup>**



## 7.3 Terms of Reference for the Small Water Enterprise Working Group

### CONTEXT

Despite achieving the MDGs on water, some 8.3 million Ghanaians lack reliable safe water access. Adoption of Sustainability Development Goal (SDG) 6.1 raises the bar for the water sector, requiring a systems approach that addresses barriers at the varied levels (project, value chain, policy, government and global) and provides a sustainable, affordable, safe water service that can be scaled up. Off-grid small water enterprises (SWEs) can contribute to addressing this need. In Ghana, it is estimated that SWEs can serve nearly 40% of the underserved population.

SWEs lack adequate funding for lack of bankable water projects, limited economic viability, lack of good governance and financial accountability. These reasons make them unattractive to private sector capital and participation. To contribute to addressing these challenges, Safe Water Network is developing various initiatives including:

<sup>a</sup> Exchange rate is GHS 4.4 to USD 1

- a 'Water Enterprise Trust' for SWEs in Ghana, as part of its long term objective to take SWE solutions to scale, and attract investment from varied sources including the private sector for SWEs. **The potential size of this facility at scale would be around \$60 million providing access to 1,000 communities and 3 million people with safe water.**
- Implementing a public private partnership pilot project that will define the governance, regulatory and contractual requirements for attracting participation and investments from the private sector.

## OBJECTIVE

The objective of the SWE Working Group is to support SWN's work in mobilizing funding for the SWE sector, guiding and facilitating the testing of new ideas and initiatives to enable expansion and scale of small water enterprises.

## MEMBERSHIP AND ORGANIZATION

The Working Group consists of the following persons (in alphabetical order):

1. Benedict Kubabom, Head of Planning & Investment, Community Water and Sanitation Agency
2. Donald Tay, Director of Water, Ministry of Water Resources, Works and Housing
3. Ekow Coleman, PPP & infrastructure Advisory Expert
4. Emmanuel Nkrumah, WASH Specialist, World Bank
5. Kwasi Osei, MD Prizm Capital and Former Director General, SSNIT **(Chair)**
6. Janet Arthur, Policy Officer on WASH, Embassy of the Kingdom of the Netherlands
7. Joseph Ampadu-Boakye, Safe Water Network **(Coordinator)**
8. Magdalene Apenteng (Mrs), Director, Financial Service, Ministry of Finance
9. Martin Dery, Executive Secretary, Coalition of NGOs in Water and Sanitation
10. Michael Ayesu, Director, External Resource Mobilisation (Multilateral), Ministry of Finance
11. Minta Aboagye, Private Consultant
12. Natasha Lamptey, Legal Practitioner
13. Samuel Apenteng, Managing Director, JOISSAM Ghana Ltd.
14. Seth Asante, Private Consultant

## TASKS AND FUNCTIONS

Specific tasks and functions of the working group include:

### **Developing the Ghana Water Enterprises Trust**

- Provide technical backstopping for the development of the organisational, financial, legal and governance model for the trust;
- Identify and mobilize funding for capitalization of the trust;
- Leverage support from key in country and external stakeholders for the trust;
- Support and review the work of independent consultants and advisors who may be engaged to assist with setting up the trust.

### **Developing Public Private Partnerships**

- Implement a community water solution/SWE involving a partnership between the public and private sectors and develop model contract templates for adoption;
- Assess the required institutional reforms and capacity building requirements at the national and district levels to support PPPs in rural and small towns' water supply; and

- Develop policy recommendations on a framework that stimulates private sector engagement in water supply;
- Assist with the identification and vetting of viable private and public sector partners.

### **Promote Financing Ideas and Networks**

- Identify and surface additional ideas for funding and financing the small water enterprise sector
- Mobilize other key stakeholders (organizations, institutions, individuals) to support the expansion of funding to the sector
- Share best practices and examples of successful funding approaches from other sectors or geographies

## **ORGANIZATION, TIMELINES & DELIVERABLES**

The Working Group will meet at regular intervals (preferably 3-4x each year or as may be determined by the Chair in consultation with members of the group) to review the progress of work on initiatives underway including the Water Enterprises Trust and PPP initiative. Subcommittees may be formed as needed where specific expertise and focus is required on a particular initiative. The meetings of the group will initially be hosted by Safe Water Network with a plan to be hosted in either Ghana's Ministry of Water Resources or Ministry of Finance in the long term. Safe Water Network will play a coordinating role and will be responsible for following up on decisions and recommendations of the working group. Intermittent updates on the group's work will be shared with sector stakeholders at Safe Water Network's Beyond the Pipe Forums held in March each year.

## **STAFFING**

The working group will be staffed and supported by Mr. Joseph Ampadu Boakye, Program Manager, Safe Water Network, who will coordinate and liaise on the schedules and meetings for the working group. Participation will be mainly voluntary with a token stipend to cover transport and commuting expenses. Direct expenses incurred on behalf of SWN will be fully reimbursed.

Established 2017.

## **REFERENCES**

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## ABOUT SAFE WATER NETWORK

Operating at scale in both Ghana and India, Safe Water Network is demonstrating a cost-effective approach for locally owned and operated small water enterprises to reach millions in need of safe water around the world. Working with other implementers and agencies, we are developing the tools and resources for replication and advancing the case for funding and policy reforms that will enable scale-up. Our team brings together expertise in engineering, operations, finance, health, policy, and social development, and draws upon work experience from world-class multi-nationals, government agencies, and not-for-profits.

With more than 60 H2OME! water enterprises providing access to nearly 300 communities across five regions in Ghana, Safe Water Network is attracting blended financing (including private sector capital), facilitating public-private partnerships, and bringing together government ministries and other stakeholders through a collaborative working group.





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