# THE UNTAPPED POTENTIAL OF DECENTRALISED SAFE DRINKING WATER ENTERPRISES

HIGHLIGHTS FROM A STUDY ON THE STATE OF THE SAFE WATER ENTERPRISES MARKET

July 2017

**This document is a summary of a 12-month study conducted in 2016 by Dalberg Global Development Advisors on behalf of Aqua for All, Danone Communities, The Stone Family Foundation, Osprey Foundation and Conrad N. Hilton Foundation.**

***The full report can be accessed at www.safewater.enterprises***

**Methodology and analysis can be examined in the full report.**

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Photo : Régis Binard

# KEY FINDINGS

## The context

The shift from the Millennium Development Goals (MDGs) to the Sustainable Development Goals (SDGs) reflects the real challenge of delivering safe and reliable water for all, moving the focus from a relatively narrow idea of providing **access** to improved sources of drinking water and setting it on a path towards a more comprehensive approach of delivering **sustainable water services.**

This has highlighted both the real scale of the water challenge and the emerging need to consider alternative models of water service delivery. The shift from emphasis on access to considerations of continuous reliability and the quality and quantity of water reflects the reality of what everyone wants and deserves.

Indeed, a new detailed analysis estimates that 3.8 billion people[1] do not have safe, sustainable water services as they currently use either 'untreated[2] improved[3]' or 'unimproved' sources of water; this figure is far more substantial than the 663 million who currently lack access to basic water services.

**There is a clear need for new channels and mechanisms at scale to provide access to safe and sustainable water services.**

## The opportunity

**Safe Water Enterprises (SWEs)** have emerged over the last 15 years as an alternative solution to a traditional challenge and currently serve about 3 million people globally. SWEs provide a modular, decentralised approach to delivering safely treated drinking water, which is typically sold in 20 litre containers that are collected at a storefront or are home-delivered.

SWEs offer complementary services to centralised water supply along all sections of the safe water value chain. Set apart from the numerous small scale local operators typically providing unsafe water, SWEs balance financial sustainability with serving lower income groups in cities, towns and villages. These groups include people who are currently unserved by piped networks as well as those using unsafe water from piped supply.

This report presents highlights from **the detailed analysis of 14 SWEs** from Africa, Asia and Latin America as well as a **global market analysis** of the sector. The objectives are to establish the scale of market which SWEs could realistically serve and to present recommendations for how they can overcome common challenges faced in improving and growing this model of water service delivery.

## The potential

As it is very challenging to estimate the number of people that could be served by SWEs without undertaking detailed in-country studies, a theoretical *cost-to-serve by SWEs* analysis was undertaken for the estimated 3.8 billion people who do not use safely treated water on a daily basis.

The full report estimated total cost-to-serve based on averaged current figures derived for the 10 SWE ventures analysed in depth. Affordability was calculated using the WHO's target that no household should spend more than 3% of their monthly household income on water.

[1] Dalberg analysis of Yale Environment Performance Index (2016), IHME, and JMP WHO/UNICEF (2015) data, which cite a total of 4.4 billion. For the purposes of this research, MENA countries have been excluded from the 4.4 billion total, as poverty data is unavailable for that region, hence reducing it to 3.8 billion.
[2] Water that has not been subjected to any process designed to remove contaminants or organisms.
[3] An improved-water source is likely to be protected from outside contamination, in particular from contamination with faecal matter. Not necessarily safe drinking water.

This analysis projects that **SWEs have the potential to be a significant part of the safe water solution on a global scale as a cost-effective mechanism to serve the poor:**

- If SWEs were to serve the ~3.8 billion people[4], this would incur a total annual cost of $65.9 billion to cover both operating expenses and fully amortised capital expenses[5], the vast majority of which would be covered by affordable user fees that average 3% of monthly household income.

- The full report estimates that, of the ~3.8 billion people, **2.16 billion people have the ability to pay for safe water themselves without subsidies**, and could be served through SWEs globally in a manner that relies solely on affordable water tariffs and leads to full cost recovery, including fully amortised capital investments, and hence financial sustainability

- An **additional 1.7 billion people would need partial subsidies**, assuming their user fees are capped at 3% of their income. This poorer segment of the population would need partial subsidies totalling $14.4 billion, in order to be served safe water through SWEs, with the subsidies being covered by government, development agencies, and/or charitable support. This represents about $8.50 of annual subsidy per person for those with only a partial ability to pay.

In view of this large potential market, the question that then arises is: **How can SWEs achieve impact at greater scale?**

The analysis in the full report highlighted the internal and external barriers to scale that were common to many SWEs as well as obstacles in the ecosystems in which SWEs operate. By addressing these barriers, the SWE sector could accelerate sustainable growth of existing SWEs and also attract new entrants into the market by:

- **improving operational efficiency**, for example by leveraging technology to reduce costs and collect data for real-time decision making.

- **achieving greater levels of customer engagement**, through better aligning with customer preferences on taste, convenience and cost in order to overcome the challenge of customers undervaluing the clean attribute of water.

- **influencing the ecosystem in which SWEs operate**, such as through developing a contractual framework for SWEs to reduce regulatory uncertainty in order to attract more capital to the sector and encourage entrepreneurs to enter the market.

## The path forward

This analysis has highlighted how the sector is evolving by adapting and responding well to market realities, albeit slowly at times. The full report reveals significant evidence of best practice in how SWEs are improving contractual practices, adopting technological innovations, hiring stronger management teams, and increasing market penetration to serve more customers.

To date, these measures alone have not enabled SWEs to reach a critical tipping point in scale or impact. However, the analysis has emphasised the operational and wider ecosystem steps necessary for SWE sector growth to continue and for SWEs to gain increasing relevance in attaining SDG 6.

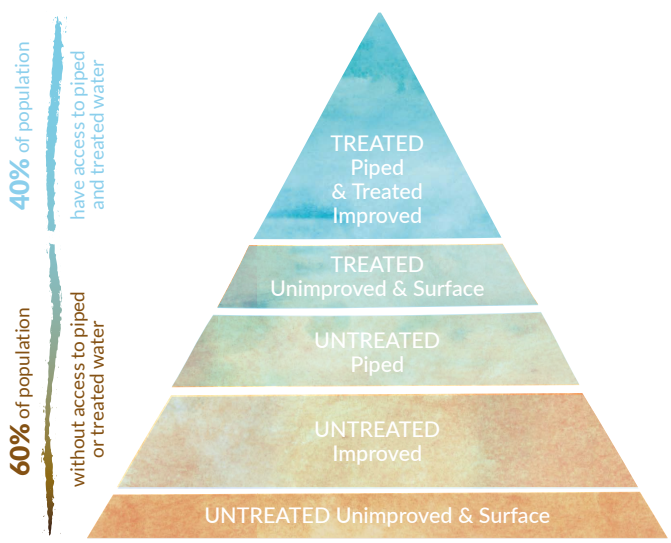
[4] The figure refers to the population that remains underserved or unserved (i.e. improved untreated or unimproved sources) except for MENA countries. The actual market for SWEs will be smaller depending on the operating conditions, the competitive alternatives or other combinations of solutions.
[5] Based on an average drinking water consumption of 2 litres per day, per person, as per WHO recommendations.

# THE SAFE WATER GAP

The shift from the MDGs to the SDGs reflects the real challenge of delivering safe and reliable water for all, moving from a relatively narrow focus on providing **access** to improved sources of drinking water and setting it on a path towards a more comprehensive approach of delivering safe and **sustainable water services.**

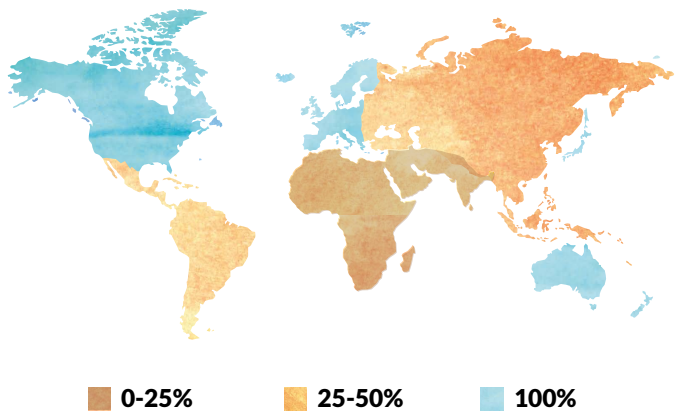
The MDG for water (Goal 7) focused on binary access to an improved water source and did not sufficiently address issues such as continuous reliability, service levels and water quality. So whilst between 1990 and 2015, the proportion of the global population using an improved drinking water source increased from 76 per cent to 91 per cent, achieving the MDGs often meant using a near-term solutions instead of supporting the local systems that can deliver safe and sustainable water services over the long term. Indeed, it is estimated 3.8 billion people[6] currently use untreated improved or unimproved sources of water, which is far more than the 663 million currently lacking access to basic water services.

Population across regions without access to treated water, by type of access




*Dalberg Safe Water Enterprises Study – 2017*

Percentage of population with access to piped, treated water




*Dalberg Safe Water Enterprises Study – 2017*

## SDG 6: Clean Water and Sanitation
## By 2030, achieve universal and equitable access to safe and affordable drinking water for all

JMP[7] results indicate that efforts to extend centralised systems have been slow and partly offset by population growth in the developing world. But even when piped water is available through central utility systems, supply and treatment is often intermittent, leading to low water pressure and contamination from cracks and leaks. Hence, water supplied is often not potable at the point of end-user consumption.

Unserved or underserved households therefore face a choice of different sources of water with different time, health and financial implications. These options include: tankers; packaged water; community stand pipes and pumps; informal refill stations; and 'free' surface water sources such as streams and ponds.

SDG 6 not only requires achieving universal coverage, but also goes far beyond merely access to take into account the underlying factors to sustainably guaranteeing the quantity and quality of water being

[6] Dalberg analysis of Yale Environment Performance Index (2016), IHME, and JMP WHO/UNICEF (2015) data, which cite a total of 4.4 billion. For the purposes of this research, MENA countries have been excluded from the 4.4 billion total, as poverty data is unavailable for that region, hence reducing it to 3.8 billion.
[7] The Joint Monitoring Programme for Water Supply and Sanitation by WHO and UNICEF: https://washdata.org

consumed and ensuring **equitable, reliable access to safe and affordable drinking water.**

The SDGs necessitate that the water sector respond, but this shift from access to sustainable service delivery, incorporating issues of quality as well as the goal of universal access, presents a significant challenge.

**There is a clear need for new channels and mechanisms to deliver safe and sustainable water services at scale.** Water delivery is a very local problem, and the appropriate approach to providing safe drinking water depends on a range of factors related to local conditions and delivery models.

New ideas and new approaches need to be considered and brought into the mainstream to become part of the range of options in order to provide better services to more people at a quicker pace.

Besides finding ways of accelerating the expansion of traditional piped networks, decentralised systems can also be a part of the solution for those who cannot immediately, or in the medium term, be reached by networks.


Photo : Sandro di Carlo Darsa

# A PROMISING APPROACH: SAFE WATER ENTERPRISES

For over 15 years, entrepreneurs, impact investors, governments and philanthropic organisations have been experimenting with decentralised solutions, which complement traditional utility approaches, to expand access to safely treated drinking water. Collectively, these solutions are referred to in this report as **Safe Water Enterprises (SWEs**).

An estimated 3 million people are served by SWEs today, and there is a need to understand better both SWE performance and how to expand their footprint so as to maximise their potential contribution towards providing safe water services for all.

## Key chararcteristics of SWEs

SWEs differ from traditional approaches to water service provision in that they target financial sustainability and social impact simultaneously, often using market-based approaches to deliver high-quality drinking water that goes beyond access to an improved source.

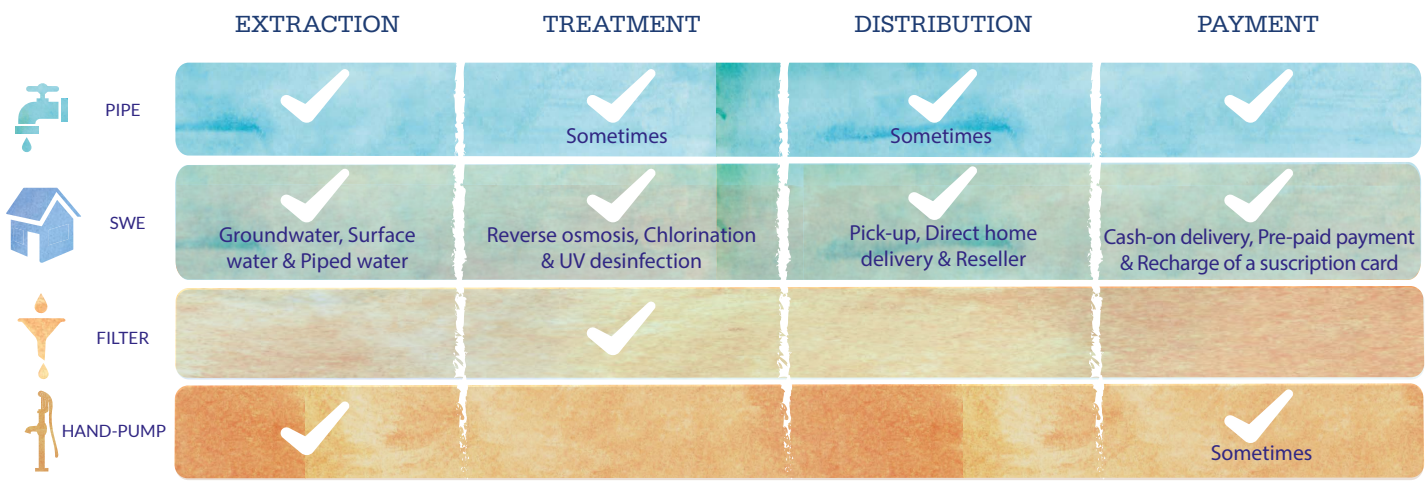
SWEs source water through many ways, from surface water to piped water, which is then treated to high standards using methods appropriate for the elimination of local contaminants.

The water is then sold and distributed to customers, typically in containers of 20 litres from storefronts or via home delivery, and sometimes also through household connections and communal waterpoints.

Pricing of the water can vary considerably, depending on whether more emphasis is placed on affordability for the poor or financial viability of the SWE venture.

SWEs use innovative, modular approaches to provide water services across the entire drinking water value chain, including extraction, treatment, transport, delivery, and payment collection. SWEs can be structured as fully integrated solutions (i.e. collecting, treating and distributing water), as franchise models, or as community-owned initiatives.

The water supply value chain



## A role for SWEs

Extending centralised piped networks is subject to constraints imposed by geography, water resources and infrastructure financing. When combined, these structural factors have negatively influenced the rate of progress to date, and as such indicate a large long-term role, and an even larger near- to medium-term role, for SWEs within a national framework for delivering safe, convenient and affordable water services to all. These roles encompass two key aspects.

**Water access:** The need to provide decentralised safe water occurs when there is limited access to centralised sources and insufficient population density to justify installing piped water services; in this situation, SWEs can provide access to safe drinking water independently and include operations along the full value chain from extraction to delivery.

**Water treatment:** SWEs also have a role to play, however, in environments where customers are offered piped water which has not been treated sufficently in terms of quality.

Photo : Dlo Haïti

The opportunity for SWEs to address these twin challenges will vary by location. In some cases, SWEs can offer near-to medium term services while the government is increasing piped water supply networks. In other cases, SWEs can provide longer term services where, for example, piped services will never be available or potability issues persist with piped water.

### KEY FACTORS AFFECTING SWE OPERATIONS

#### Financial sustainability

**SWEs typically need to locate in settlements of 1000+ households to ensure minimum sales volumes. With moderate-high penetration levels, the cost to serve users falls sharply and in most cases, it will be more cost effective than centralised piped water schemes, especially when factors such as pipe contamination are taken into account.**

#### Social impact

**Sites that lack the presence of formal private operators/ centralised systems are prioritised, given the potential to cater to the underserved, and to maximise social impact. Through financial necessity, most SWEs target underserved customers in the middle 30% - 70% income bracket; below this point, serving the poorest of the poor has not been financially viable.**

#### Water conditions

**Prevailing water conditions are an important criterion: if the water is fit for consumption, e.g. negligible bacterial or chemical contamination, ventures typically do not operate in these areas. SWE operations work with groundwater, surface/ rain water, water from piped sources, and sea water using methods such as reverse osmosis, ultrafiltration and bacteriological disinfection.**

## SWEs studied: locations and key characteristics

To understand the effectiveness, scalability, replicability and the global market opportunity for the SWE sector, 14 SWEs were reviewed from across the globe. Ten of these ventures were analysed in depth, starting with information available in the public domain and shared by the ventures.

These desk reviews were followed up with field visits, during which the SWEs' leadership, field teams and kiosk operators were interviewed; small samples of customers and non-customers were also questioned. For the other four SWEs, key innovations were reviewed to understand their performance and to identify the commonalities in the challenges faced and the best practices in overcoming these.

| SWE | FOUNDED | COUNTRY | BUSINESS MODEL | PRIMARY FUNDERS |
|---|---|---|---|---|
| | 1994 | Malawi | Management support to existing kiosks | Charity Water, Osprey Foundation, The Coca Cola Foundation,The Stone Family Foundation, UNICEF |
| | 2002 | India | Community operated kiosks; pick up model | Aurobindo Pharma, Chola, Franklin Templeton |
| | 2007 | Cambodia | Franchisee operated kiosks; home delivery | Danone Communities, The Stone Family Foundation |
| WATER POINT | 2007 | India | Venture operated kiosks; pick up model | Earth Water Group |
| Safe | 2008 | Ghana | Venture operated kiosks; primarily pick up model | Hilton Foundation, Newman's Own Foundation, Osprey Foundation, PepsiCo Foundation, The Stone Family Foundation |
| sarvajal | 2008 | India | Venture and Franchisee operated kiosks; pick up and home delivery | Piramal Foundation |
| iPure | 2010 | India | Venture operated kiosks; pick up model | Danone Communities, Mahindra |
| Jibu | 2012 | Rwanda | Franchisee operated storefront; micro-franchisee (reseller) delivery model | Cordes Foundation, Odell Family Foundation, Petritz Foundation, Soderquist Foundation, SPRING, USAID |
| SPRING HEALTH | 2012 | India | Franchisee operated kiosks; home delivery | Aqua for All, Paul Polak, The Stone Family Foundation, TR Ventures |
| dloHaiti | 2013 | Haiti | Venture operated kiosks; reseller model | Danone Communities, FMO, IFC InfraVentures, Jim Chu (Founder), Leopard Capital |

SWEs in this study are strongly driven by their social mission of bringing safe water to the underserved, but none currently serves more than 1 million people; the average SWE serves 200,000. The number of customers varied considerably from over 800,000 people served by Bala Vikasa in India (Maharashtra, Chattisgarh, Telangana and Andhra Pradesh) to 25,000 people served by dloHaiti in Haiti.

A typical SWE customer lives above the poverty line, and does not have access to piped water – safe or otherwise. While the specific context varies with the venture, the typical customer is either low or middle income and spends approximately 2-3% of monthly household income on water.

# SWE case study: Naandi, India

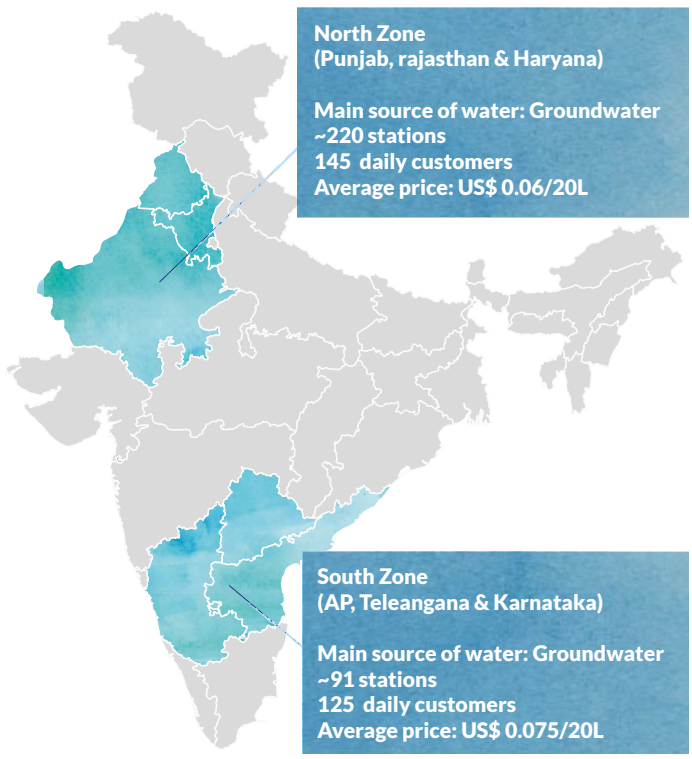
Naandi Community Water Services (NCWS) is a safe water enterprise based in India. The Naandi Foundation water project was established in 2005 and NCWS was formed in 2010 with the aim of providing safe drinking water to underserved communities in rural India.

It offers 20 litre cans of Reverse Osmosis purified water to households through decentralized treatment and distribution points (kiosks) at an affordable price. The venture positions its kiosks at a strategic point in a village (Naandi largely operates in rural underserved areas) where customeres pick-up their water cans. Naandi is a social enterprise which is funded through grants, debt and equity.

## Overview

- The venture serves around 402.800 customers (without considering the water kiosks that have been handed over to the communities) among which a vast majority of them earn US$ 5 a day or less
- 90% customers are regular users of water
- Raw water access: Sourced from existing local borewell in 99% of cases
- Purification: Reverse Osmosis and UV
- Payment: 30-day punch card or Pay As You Go
- Delivery: Water dispensing ATMs or Manual Tap
  Pickup: comprise 92% of sales across kiosks
  Home Delivery: distributors on-sell to customers living further away charging a 50-150% premium

Area and details of operations




Profile of a typical customer

The regular dependant

US$ 1.80 per month spent on water

Satyaprakash, early 70s & labourer
Customer for 5 years
Daily purchase i.e. 600L/month

Use: only for drinking and not for cooking (tap water)
Feedback: Taste was difficult to assess but has become better

The summer dependant

US$ 1.80 per month spent on water

Shankar, late thirties, shop owner
Customer for 5 years
Frequency: Alternate days

Use: On-sale of chilled water to customers using Naandi water
Feedback: Prefer cards with smaller values

## Price of alternatives:

- Naandi provides water at a much lower price (US$ 0.04 - 0.07/20 L) than formal treated alternatives like chilled water provider (US$ 0.14/20 L) and home based Reverse Osmosis units (upfront cost and cost of repairs)
- Tap & bore well water is free

## Price of alternatives:

- Competition includes other Reverse Osmosis suppliers, taps and bore wells; consumer preference for taste and ease of access drives the relative market share.


Photo : Sandro di Carlo Darsa

# SWES: COST-EFFECTIVE SOLUTIONS AT SCALE

It is very challenging to estimate the numbers of people that could be served by SWEs without undertaking detailed in-country studies looking at local context and operating conditions.

As an alternative, the theoretical *cost-to-serve by SWEs* was investigated for the 3.8 billion people globally who the full report estimated do not use safely treated water on a daily basis. The analysis estimated total cost-to-serve based on averaged current figures derived for the 10 SWE ventures analysed. Affordability was calculated using the WHO's target that no household should spend more than 3% of their monthly household income on water.

This analysis projects **SWEs have the potential to be a significant part of the safe water solution on a global scale as a cost-effective mechanism to serve the poor:**

- If SWEs were to serve the ~3.8 billion[9] people, this would incur a total annual cost of $65.9 billion to cover both operating expenses and fully amortised capital expenses, the vast majority of which would be covered by affordable user fees that average 3% of income.

- Of the ~3.8 billion people, the full report estimates that 2.16 billion people have the ability to pay for safe water, and could be served through SWEs globally in a manner that relies solely on affordable water tariffs and leads to full cost recovery, including fully amortised capital investments, and hence financial sustainability.

- An additional 1.7 billion people do not have the ability to pay full tariff, assuming their user fees are capped at 3% of their income. This poorer segment of the population would need partial subsidies totalling $14.4 billion to be served safe water through SWEs, with the subsidies being covered by government, development agencies, and/or philanthropies. This represents about ~$8.50 of annual subsidy per person for those with only a partial ability to pay.

**In short, the analysis shows SWEs could represent a cost-effective, wide-scale mechanism to serve the poor with safe water, taking just 3% of income for 2.16 billion people and 3% of income + $8.50 per person per year for the poorest 1.7 billion people.**

Photo : Régis Binard

[9] The figure refers to the population that remains underserved or unserved (i.e. improved untreated or unimproved sources) except for MENA countries. The actual market for SWEs will be smaller depending on the operating conditions, the competitive alternatives or other combinations of solutions.

# ACCELERATING SWEs GROWTH

**How can the challenges to long term sustainability be overcome?**

The theoretical figures for cost-to-serve on a global scale are encouraging, and suggest that SWEs could make a significant, cost-effective contribution as part of an overall strategy to provide safe water.

The more immediate question is how can SWEs achieve impact on a greater scale than current operational levels have reached?

The short- to medium-term focus for most of the SWEs in the full report is on achieving financial sustainability through increased market penetration: the ventures studied are seen to have a positive gross operating margin, but when the costs of depreciation of capital expenditure and general and administrative overheads are included, the majority of SWEs in the study are currently loss-making. As such, they rely on continuing philanthropic support.

The analysis highlighted commonalities in the internal and external barriers to scaling operations, and also considered the influence of the ecosystem in which SWEs operate. By minimising these barriers, and facilitating the broader ecosystem, it is realistic to consider the sector could not only accelerate sustainable growth of existing SWEs but also anticipate start-up SWEs will be attracted to enter the developing market.


## Improving operational efficiencies

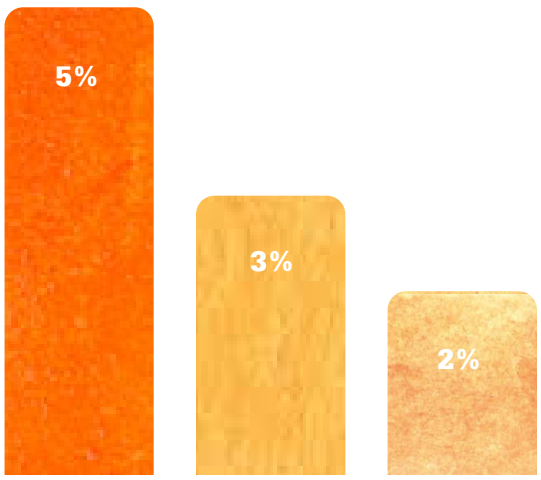
Low market penetration rates are coupled with most SWEs operating a portfolio of high-performing and under-performing plants, while average plant utilisation rates are well below optimal across all ventures.

The full report identifies 4 areas through which operational efficiencies can be improved:

1

**Leveraging technology** to reduce costs and collect data for real-time decision making. Many ventures do not use technology to track customer data and habits, largely through lack of expertise within teams to monitor data in real-time, and to analyse and respond accordingly, inhibiting marketing and sales development.

**Ventures with capability to track real-time sales data**
% by technology




**What data is being collected?**
Ventures collect data on litres sold, number of customers with a card (if applicable) and revenues collected

**What is currently used for?**
To prevent leakages in the system i.e., for reconciliation between cash collected and water dispensed.

**What is the potential for existing technology?**
- Real–time data on water dispensation can be used to **optimize water production and labor costs,** e.g., operating kiosks to match high traffic hours
- **Conduct targeted marketing,** e.g., leverage RFID technology to match consumption data with user demographics and focus on target customer segments such as low income households with unpredictable incomes, that are difficult to acquire and/or retain
- **Making Monitoring & Evaluation more robust,** i.e., accurately understand users who regularly access venture's water, their socio-economic conditions, demographics etc.

**What's stopping them from doing so?**
Lack of expertise within the team to monitor in real-time, analyse the data and ensure appropriate response

2

**Instituting strong knowledge management systems.** In the SWEs studied, knowledge management is largely informal without systemisation. Ventures typically have internal systems that codify best practices on marketing, business management, operations etc. or they have strong systems focusing on one or more of these aspects. External knowledge management practices are generally weak as most ventures typically do not have systems to share their learnings/ experiences with a broader, global audience.

3

**Additional products and services** to drive station level volumes, ensuring minimum plant utilisation and improving margins.

Below are examples of ventures that are leveraging sales of secondary products or seeking anchor loads that assure minimum plant utilisation and drive sales volumes

### 1 Sale of secondary products

- 30% of DloHaiti's current revenues come from sale of secondary products (such as deodorants, shampoo, and toothpaste), while 70% comes from sale of water
- Higher margins from secondary products could have a considerable impact on station level profitability
- It is now aiming to increase the share of revenues from secondary products to ~70% by 2018-2019

### 2 Household connection

- Safe Water Network recognized a 5-10x increase in daily consumption of water if households (HH) that had a piped service at home
- As part of its strategy, Safe Water Network has started providing direct HH connections for a one-time fixed fee, and a recurring operations and maintenance fee
- Currently, less than 10% of the HH have connections, but drive nearly 25% of water sales
- As part of its strategy, Safe Water Network is actively trying to increase the number of HH connections to ensure high station utilisation

### 3 Institutional sales

- Naandi is experimenting with an approach where local institutions such as schools, businesses and hospitals account for nearly 30% of their sales
- By virtue of lower distribution costs, institutional clients offer a much higher margin to Naandi
- The approach is currently at a pilot stage at one station

4

**Designing robust mitigation strategies** to manage both endogenous and exogenous risks. The analysis identified key trends across the major risk categories, and replicable best practices of the SWEs studied.

| Number of ventures assessed that rated medium or high on the following risk categories | Key trends among the risks faced by ventures studied across key categories | Some mitigation strategies |
|---|---|---|
| Operational: 10 | • Building teams at both the corporate, and field levels | Temporary recruitment of experts |
| | • Retaining autonomy in site location, as well as in entrepreneur selection (applicable for the franchisee model) | Self-financing expansion |
| | • Maintaining consistency in water quality across stations | Setting up a platform |
| | • Lacking alignment within the organization on the vision for the future | |
| | • Increasing cost of utilities (e.g. electricity) | High cost back-up |
| Regulatory: 9 | • Minimizing political interference in the form of appropriation, restrictions, and provision of free water after SWE operations have commenced | Building community good will |
| | • Operating in an uncertain policy environment, resulting in a "regulatory grey environment" for the SWEs | No clear strategy |
| | • Maintaining compliance with local regulations (e.g. disposal of waste water, minimum wages for kiosk operators, etc.) | No clear strategy |
| Financial: 8 | • Creating a sufficient funding pipeline to finance aggressive future growth plans | Separating funding and ops entities |
| | • Looking beyond individual station level sustainability to that at the organizational level | Investing in HQ staff |
| | • Maintaining sufficient cash flows to finance station opex + corporate overheads | Bringing in grant funding |
| Market: 8 | • Competing with small-scale private sector operators, subsidized sources from the government, and natural sources available for free | Focus on branding and community engagement |
| | • Creating more demand to increase penetration | Investing in marketing efforts and new delivery channels |
| Environmental: 6 | • Relying entirely on one source of raw water (typically groundwater) and being forced to shutdown stations during summers | Looking at multiple sources at the time of setup |


## Stepping up customer engagement

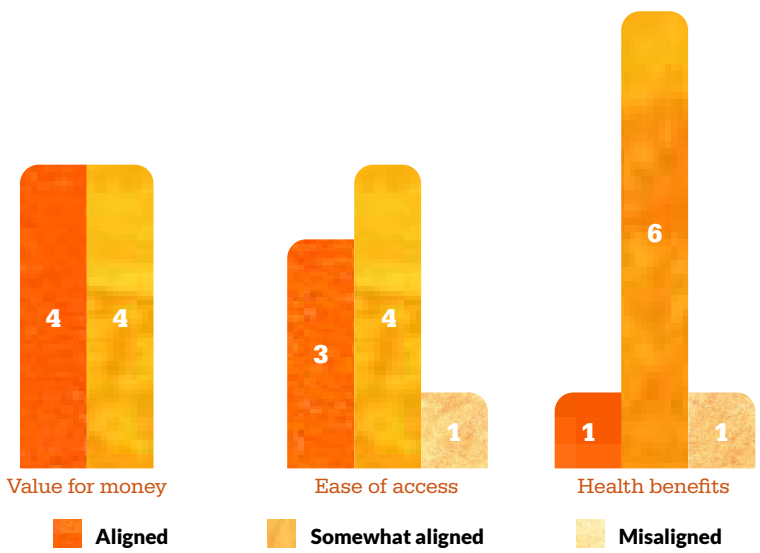
Water is a heavy product and SWE locations tend to have a high fixed cost base, thus the profitability of SWEs depends on high-penetration rates in small catchment areas. But market penetration levels are typically low (average rates are 19%) and tend to be insufficient to recover capital costs. Most SWEs will need to double market penetration to be profitable.

Key to increasing market share is improving **customer engagement** through:

1

**Better aligning with customer preferences on taste, convenience and cost.** While the **need** for safe water clearly exists, the **market** for safe drinking water at the base of the pyramid does not, i.e. water is a **push** commodity at the BoP. The constant challenge faced by SWEs in the study is of customers undervaluing the clean attribute of water over considerations of convenience, taste and cost. Safe water has not yet gained salience in the market place. As a result, SWEs are currently having to play the dual role of market building and water service provision.

**Venture alignment with customers on service attributes**
Aligned[1], somewhat aligned[2] & misaligned[3], n = 8




**Health benefits**
Health was largely considered by customers to be a peripheral benefit while 6 out of 8 ventures cited it as a major competitive advantage. On one occasion, customers found health to be a primary driver while the venture thought it to be a peripheral one

**Ease of access**
Ventures offering a pick – up service typically thought of the strategic location of their kiosk as highly convenient, however, many customers cited the value they placed on delivery to the doorstep

**Value for money**
While half the ventures we visited were able to convey their advantage on a price – attribute ratio, the other half could improve by maximising the value of an attribute e.g., moving from a pick-up to a home delivery system

Note: (1) Aligned: when venture perspective was largely in alignment with customer perception; (2) Somewhat aligned: when venture perspective had some discrepancy with customer perception; (3) Misaligned: when venture and customer perceptions were widely different
Source: Field interviews, venture leadership interviews, Dalberg analysis

2

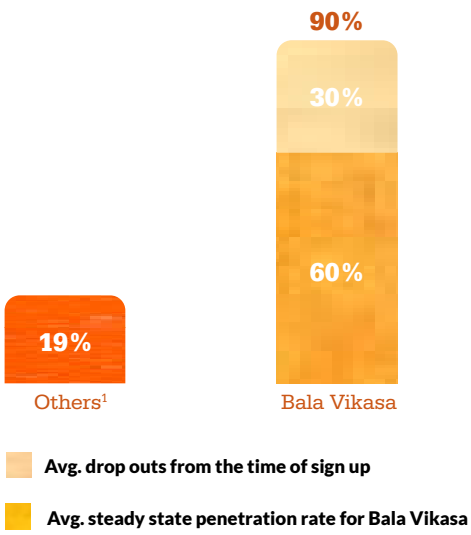
**Increasing awareness.** Establishing the market involves investments in demonstrating the need for safe water and being able to clearly identify water which is safe to drink and that which is not. The key is then being able to use this to drive customer behaviour change, reinforcing messages over time through multiple media channels and touch points with customers. Brand recall is typically challenging for customers, requiring brand reinforcement over the long-term to prevent customer drop-outs, particularly as more private sector water providers emerge in a developing market.

But most of the SWEs in this study pursue community engagement and education with very limited support to market their product or, critically, to establish the market for the product. SWEs in the study were found instead to leverage existing resources for field level marketing and sales, in particular working through local champions and conducting live demonstrations of the benefits of safe water.

3

**Driving adoption** by maximising convenience through innovative home delivery systems and getting community buy-in before a station is set up. The ventures combining both proximity-related convenience (e.g. a kiosk present next door or delivery to the doorstep) and time-related convenience (e.g. accessible during non-work hours) rate especially highly among customers. Investing in home delivery systems has the dual benefit of increasing penetration and providing a higher return, while also increasing asset utilisation and reducing overheads per customer.

**Comparison of Bala Vikasa's (BV) penetration with other SWEs included in the study**




**How does the BV model work?**

- BV invites applications from village panchayats and agrees to conduct a preliminary awareness drive only if 90%+ of the community agrees to participate
- Social pressure, and network effects lead to high participation levels in the preliminary drive – BV agrees to set up a kiosk only if 90%+ of the community signs up, and pays a sign up fee
- The one-time sign up fee varies on a project-wise basis, and is decided based on the capital expenditures shortfall for the particular project (the maximum fee reported by venture staff was ~$6/ household2)
- Once the station is set up, households view the upfront fee as a sunk cost, and become BV customers to recover their investment
- While drop outs occur on account of migration, and individual preferences, the steady state penetration rate is about 60%
- Dalberg's observations also suggest that once customers use safe water, they appreciate its value, and rarely go back to their previous source of water

Note: (1) Calculated as the average penetration of all other ventures for which data was available (2) Converted from INR 400 @ 1 US $ = INR 67
Source: Venture research, Dalberg analysis

4

**Ensuring sustained use** through better customer-centred focus. This may entail simple design changes ranging from offering smaller form bottles and enabling customers to easily carry cans, to expanding delivery times through resellers to meet working customers' needs and offering flexibility in water pricing. All of these measures can increase access to SWE products for customers with different preferences, socio-economic and demographic profiles.

Operating ecosystem

## Strengthening the ecosystem in which SWEs operate

**Sector influencers could play a critical role in easing the external constraints faced by SWEs.** The SWE sector is still relatively underdeveloped with limited strategic coordination beyond the regional level. Below are a set of five areas which provide key points of engagement around which sector players could collaborate and coordinate efforts at the national and global level, as has been successfully implemented in other sectors.

1

**Developing a regulated contractual framework for SWEs.** SWEs typically operate in an uncertain regulatory climate and face threats including centralised networks extending into their service areas at subsidised prices and low-cost local competitors that may not be selling safe water.

Multilateral/ bilateral agencies could undertake advocacy efforts to key government institutions/ decision makers, to clarify the positioning of SWEs as the last mile access and/ or purification service provider. Support from these agencies could entail assisting government institutions and policy makers in:

- drafting national policies for SWEs that provide an overall governing framework
- supporting the development of a PPP toolkit
- introducing innovative contracts and operational financing support
- standardising performance based models that encourage long-term partnerships between SWEs and local governments.

Reducing regulatory uncertainty could attract more blended/ commercial capital to the sector and encourage entrepreneurs to take a more aggressive approach to scaling their operations.

Photo : Sandro di Carlo Darsa

2

**Creation of a global alliance for safe drinking water.** SWEs are often perceived as a substitute for centralised systems, and their role in addressing the safe water gap can be unclear – as a result, they operate in an uncertain policy environment, occupying an unsecured space between government and small scale operations.

A safe water alliance could not only help bring global recognition to the potential of SWEs but can also address the ecosystem issues that SWEs experience beyond the micro environment in which they individually operate:

- mobilising funding to support SWEs in creating a market for safe water at the BoP
- helping position SWEs as being complementary to centralised systems, helping SWEs leverage their existing knowledge and experiences and sharing them with the broader sector
- providing technical assistance to SWEs on the operational and financial aspects of the safe water business
- encouraging host governments to mitigate the regulatory risks faced.

These measures would help align global stakeholders in the safe water space on a common vision for SWEs, and develop a collective theory of change.

3

**Designing a global brand umbrella.** Donors and investors could help SWEs manage their brand positioning efforts by hosting an open source branding platform which SWEs can use if they agree to adhere to a set of rules/bylaws centred around quality, mission alignment and business management standards.

This platform could contribute to the long-term consolidation of safe water brands available in developing markets, helping customers navigate brand noise often created due to a large number of small-scale private sector operators. This could also help develop a longer-term association and trust from customers in a brand, equating it with high quality and dependable services – something that could be a key differentiator for customers in a crowded water market.

4

**Build an aggregator of technology suppliers to help lower capital expenditure and operating expenditure for SWEs.** SWEs are required to adapt their technology to the local operating context (i.e. source of raw water and contaminants present in it). Typically, this results in a case-by-case placement of equipment orders, which limits price flexibility, and has long lead times – overall, this results in a higher capital expenditure and operating expenditure structure for SWEs.

Entrepreneurs, foundations, and investors could help identify in-country technology suppliers covering a broad range of treatment technologies and equipment, and build a roster of suppliers for different countries where SWEs are active or looking to expand to.

A roster of such suppliers, and leveraging bulk placement of orders would help SWEs to negotiate on price, lead times and maintenance support. In the longer term, cost rationalisation would contribute to financial sustainability, reduce lead times for supply and maintenance of treatment/ purification equipment, and allow for the standardisation of plant and machinery used.

5

**Piloting and launching the platform-as-a-service model.** The analysis suggests an opportunity further down the line to encourage mature SWEs to carve out a platform-as-a-service business model targeted towards local private water providers that presently do not have access to these services. This would allow the more established ventures that have strong in-house capabilities in services such as quality assurance, preventive maintenance, staff training, etc. to leverage this to bolster their own sustainability, and scale their impact.

# FULFILLING THE POTENTIAL OF SWES

SWEs are part of a relatively young sector, which has already demonstrated a modest level of market penetration using nascent business models and operating in challenging markets.

The analysis provides significant evidence of how SWEs are putting in place stronger and more robust contractual practices, adopting technological innovations to strengthen operations, hiring stronger management teams, and increasing market penetration to serve more customers. To date, these measures alone have not enabled SWEs to reach a critical tipping point in scale or impact but good progress is being made.

It is clear there are a set of operational and wider ecosystem steps which are necessary for SWE sector growth to continue and for SWEs to gain an increasing relevance in successfully attaining, and sustaining, SDG 6. This report and detailed analysis provides useful recommendations which the sector can use to focus efforts and drive forward the acceleration of these ventures and the SWE sector.

The goal of universal, sustainable and equitable access to safe water has provided the context for reconsidering the challenge of delivering safe water to all and has highligted the need for the sector to adopt different approaches in response.

There is now a significant opportunity for SWEs to accelerate and become a key part of the spectrum of solutions that will be required to achieve these ambitious goals.

Photo : Régis Binard