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**F&O  
REPORT  
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# SUSTAINABLE ENTERPRISES FOR WATER AND HEALTH FINANCIAL AND OPERATIONAL PERFORMANCE OF SAFE WATER ENTERPRISES IN INDIA



## CONTRIBUTING ORGANISATIONS



## CO-FUNDING PARTNERS



## ABOUT THE REPORT

This report 'Financial and Operational Performance of Safe Water Enterprises in India' analyzes the various Safe Water Enterprises (SWEs) or Water ATMs operating models and their financial performance. It is developed under Project SEWAH, 'Sustainable Enterprises for Water And Health,' a collaboration between Safe Water Network and USAID to increase affordable and sustainable access to safely managed drinking water, along with the Ministry of Housing and Urban Affairs.

The report is based on the actual performance data and not projections. It presents the analysis of +7000 Water ATMs set up by SWE Implementing partners – Drinkwell Systems, JanaJal WoW, Rite Water Solutions, WaterHealth India, Waterlife India, and Safe Water Network India across more than 20 States of India over the last two decades. The Report also captures the Financial and Operating Performance of SWEs set up by the State governments.

It has four sections:

**Section I: Introduction** captures the need of SWEs and some of the leading SWE implementers. It defines categories of SWE Life Cycle costs into various levels, such as field, cluster, partial cost, full cost, etc., to understand to which level the SWEs are sustainable and what are the sustainability gaps.

**Section II: SWE Operating and Financial Performance** describes the various SWE models and maps their risks. It presents aggregated data of the SWE's financial performance of the 60 Water ATMs cum Water Knowledge Resource Centers set up by the SWE Alliance Implementing partners under the program SEWAH.

**Section III: Viability Gap and Subsidies** presents the annual viability gap for SWEs to be sustainable and describes the costs that are unmet from the revenues of the daily water sale.

**Section IV: Subsidy Model** explains the various subsidy models in cash or kind available for the SWEs

The report builds upon over a decade-long work of Safe Water Network India, working with the government, SWE implementers, and private sector partners to facilitate decentralized, affordable, and safe drinking water access wherever needed. This report is intended for stakeholders in the safe drinking water sector, including Central and State governments, urban local bodies, the private sector, impact funders, corporates, and financing institutions committed to delivering safe and affordable water through SWEs.



Consumers buying water in Telangana

## PROJECT SEWAH

SEWAH: Sustainable Enterprises for Water and Health is a collaboration between Safe Water Network India and USAID to scale up affordable, safe water access through decentralized, safe water enterprises or ATMs. SEWAH catalyzes the sector through the SWE Alliance and a virtual Center of Excellence that promotes knowledge-sharing, best practices and networking. Working with the Urban Local Bodies and the Ministry of Housing & Urban Affairs, SEWAH provided policy recommendations for SWE scale-up.



Safe Water Enterprise at the Nizam Institute of Medical Sciences, Hyderabad set up under SEWAH by Safe Water Network

# ACKNOWLEDGEMENT

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We would like to express our sincere gratitude to the United States Agency for International Development (USAID)/ India team for their funding support and our funding partners, PepsiCo Foundation and Pentair Foundation, which enabled us to prepare this report and present our findings. USAID's support has advanced our initiatives in the sector and it will help inform policy dialogue on subsidy support similar to the piped water utility gap funding base. Their guidance further helped in understanding the success factors that determine not just the viability but the operational and financial sustainability of these enterprises over the long term. Through the SEWAH: Sustainable Enterprises for Water and Health program, women can provide safe, affordable water, impart WASH education, and promote sustainable practices.

We would also like to appreciate the following experts and acknowledge their contributions for playing a significant role in this report:

- SEWAH implementing partners: Drinkwell Systems, JanaJal, Maithri Aquatech, Rite Water Solutions, Stellarin Ventures, WaterHealth India and Waterlife India.
- Our training & capacity-building partner, Clean Water & Energy Trust (CWET), for their knowledge and expertise in conducting periodic training programs with required tools for women empowerment.
- Special thanks to our prime funders and knowledge partner, USAID/India: Mr. Mark Tegenfeldt, *Office Director – General Development Office*; Mr. Chigozie Okwu, *SEWAH Agreement Officer Representative (AOR)* and Mr. R K Srinivasan, *WASH Project Management Specialist*.

Last but not least, we would like to acknowledge our Safe Water Network India team members for their hard work and dedicated time towards developing this report.

# TABLE OF CONTENTS

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Abbreviations.....	5
Executive Summary .....	6
Section I: Introduction .....	9
Section II: SWE Operational and Financial Performance.....	14
Section III: Viability Gap and Subsidies .....	19
Section IV: Subsidy Models.....	23
Way Forward.....	28

# LIST OF EXHIBITS

---

Exhibit 1. SWE Implementers (Non-Exhaustive)	09
Exhibit 2. Lifecycle Costs for SWEs	10
Exhibit 3. CapEx to set up an SWE	11
Exhibit 4. Breakup of OpEx	11
Exhibit 5. SWE Operating Models in the Sector	14
Exhibit 6. Prevailing private sector engagement models	14
Exhibit 7. Risk-Mapping for SWEs	15
Exhibit 8. SWE Implementers and their Models	15
Exhibit 9. Summary of Operating Models	16
Exhibit 10. Typical Financial Performance of SWEs	17
Exhibit 11. Annual average breakup of cost and viability gap funding of SWEs	20
Exhibit 12. Service Subsidy to achieve desired social outcomes	21
Exhibit 13. Performance-based Management Structure	23
Exhibit 14. Social Impact Investors/High Net-worth Individuals	24
Exhibit 15. Technical Assistance provided to a State Government	25
Exhibit 16. Evaluation of Funding mechanism based on needs and requisite	29

# ABBREVIATIONS

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ATM	Any Time Water Machine
AMRUT	Atal Mission for Rejuvenation and Urban Transformation
ARF	Asset Renewal Fund
B	Billion
CSR	Corporate Social Responsibility
CapEx	Capital Expenditure
CapManEx	Reserve Capital Maintenance Expenditure Reserve
ExDS	Direct Support Expenditure
ExIS	Indirect Support Expenditure
HNI	High Net Individual
M	Million
MoHUA	Ministry of Housing & Urban Affairs
M&E	Monitoring & Evaluation
NGO	Non-Governmental Organization
O&M	Operations & Maintenance
OpEx	Operating Expenditure
PPP	Public-Private Partnership
SEWAH	Sustainable Enterprises for Water and Health
SHG	Self Help Group
SWE	Safe Water Enterprises
SWNI	Safe Water Network India
T	Trillion
ULB	Urban Local Body
USAID	United States Agency for International Development
VGF	Viability Gap funding
WKRC	Water Knowledge Resource Center

# EXECUTIVE SUMMARY

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**Decentralized Safe Water Enterprises (SWEs), popularly called Water ATMs,** are low-cost, affordable, 24x7 safe drinking water access solutions for communities and consumers on the go. SWEs have proven their resilience to climate change and pandemics and prevent plastic scourge due to single-use plastic bottled water. SWEs fill in the much-needed gap of servicing the underserved, the bottom of the pyramid population, and the consumer on the go in urban and rural regions as well as high footfall areas where consumers can access safe water in their container at INR 1 or 0.01 cent per Liter.

**The quest for financial sustainability of SWEs** has occupied a prominent place in the scale-up of the sector. Financial sustainability is one of the biggest bottlenecks that have prevented the private sector and funder participation, relegating the Water ATMs to a government-funded, philanthropic-aided social entrepreneurship model. Civil societies often manage SWEs to serve affordable, safe drinking water to the poor. While the need for these decentralized SWEs is undisputed, their financial and operational sustainability is always under question.

Approximately **50,000 Water ATMs in India are set up by more than 30 SWE implementers** across several states. With Capex and startup costs ranging from \$20 000 to \$30 000 to serve a population of 3-5 thousand, they are cost-effective solutions providing affordable, reliable, and safe drinking water at ~\$1/person/year or \$15/per person.

While the **revenues from water sales cover the costs at the local operating level**, including operator's salaries, electricity, chemicals and consumables, and regular repair and maintenance, the cluster management costs associated with ensuring sustainability are not covered. **SWEs need constant viability gap funding support**, both direct and indirect. A portfolio approach helps cross-subsidize and support weaker SWEs with locations with low demand due to a lack of awareness. Similarly, 15% to 20% of Water ATMs in major cities have gone defunct within a year of installation due to the absence of O&M provisioning or low demand.

**Safe Water Enterprises are a perfect example of a successful Public Private Partnership PPP model** implemented with various governance models that bring together the communities, the public sector, and the private sector to offer a complementary solution for safe and affordable drinking water. Correct siting of SWEs in high footfall areas helps the users access the services while making the operations financially viable.

The government, private sector, and philanthropic organizations have tested various operating and funding models for SWEs to attract private capital, including Public-Private Partnerships (PPPs), Company Owned and Operated (COO), and Company Owned, Community Operated (COCO). While each aims to recover OpEx through revenues, these models are challenging with very low margins.

**To encourage greater private sector participation**, it is necessary to have a) Articulated policies that allow stakeholders and utilities to strengthen their position to PPPs in the water sector, b) Realistic pricing, guidance on tariff structures, and performance-linked subsidies can also help improve the sector's viability c) Sharing of best practices and knowledge transfer to improve ULB capabilities for robust implementation and monitoring of PPP performance d) Provide incentives for new private impact investment with government as the outcome funder e) Attract private capital through innovative instruments of finance, with success-fee-based models and f) Results-based financing to encourage sustainable operations.

**Innovative finance** mobilizes blended finance by increasing the returns earned or reducing the risks investors bear. However, given low revenues due to affordable prices (US\$ 7 ¢ - 15 ¢), these

SWEs often need viability gap funding to ensure sustainability while keeping prices affordable. The water revenues do not cover the Information Education and Communication (IEC) costs, Monitoring & Evaluation (M&E) costs, Water Quality Testing, and Field Supervision costs essential to reliable service delivery. These costs are often funded through philanthropic grants such as CSR or Subsidies.

**Our analysis of the operating and financial performance of the SWEs** set up by various SWE Implementers across India under the [SWE Alliance](#) identifies the level to which these SWEs can fund themselves from the daily water sale revenue and what subsidy is required so that they can function reliably. This report highlights the success factors that determine not just viability but operational and financial sustainability of these enterprises over the long term: (a) Cluster-level O&M support required for the ATMs, (b) Consumer Trust and continuous engagement for behavior change, (c) Need for an Asset Renewal Fund for long-term capital needs, (d) Financial Discipline among communities and social entrepreneurs, (e) An affordable Pricing and equitable distribution ensures that no one is left behind by including all the sections of the society, and (f) an approach to Relocate the unviable or unproductive ATMs to preserve capital invested.

**SWEs need an average subsidy of \$1000-1400 per annum** to cover the Cluster management costs while ensuring affordability to the most underprivileged communities. The actual subsidy is a function of many factors, including population served, demand generated, pricing, willingness to pay, the proximity of SWEs in the cluster, raw water quality, community involvement, and ownership, among many others.

**For the survival and sustainability of the SWEs, targeted result-based subsidies can be a powerful and progressive solution** ensuring that people benefit from reliable water supply services and the CapEx spent is optimally utilized. Subsidies need to be smartly targeted, transparent, tapering, and efficient. The reforms recommended include:

- Promoting subsidies that help extend services to under-or unserved areas by reducing upfront costs and spreading out costs over time, such as through no- or low-interest loans / CSR funding/government tenders.
- Identifying valid and feasible indicators correlated with income and performance.
- Design CapEx subsidies to attract and leverage additional long-term sources of capital.
- Viability Gap funding grants as a subsidy tool that the Governments can use to incentivize private investment
- Performance-linked subsidies to be disbursed on achieving measurable outcomes can be an effective tool for results-based financing.

Innovative financing models/Subsidy models can play a critical role in mobilizing investments and strengthening the financing and operational systems in the SWE sector. Pay for success, impact bonds, viability gap funding, free water mandates support, and other direct or indirect subsidies will help stimulate the sector.

**The report aims to apprise the governments, development partners, funding institutions, donors, and philanthropes of the sustainability challenges and initiate a policy dialogue on subsidy support for SWEs similar to the piped water utility.**



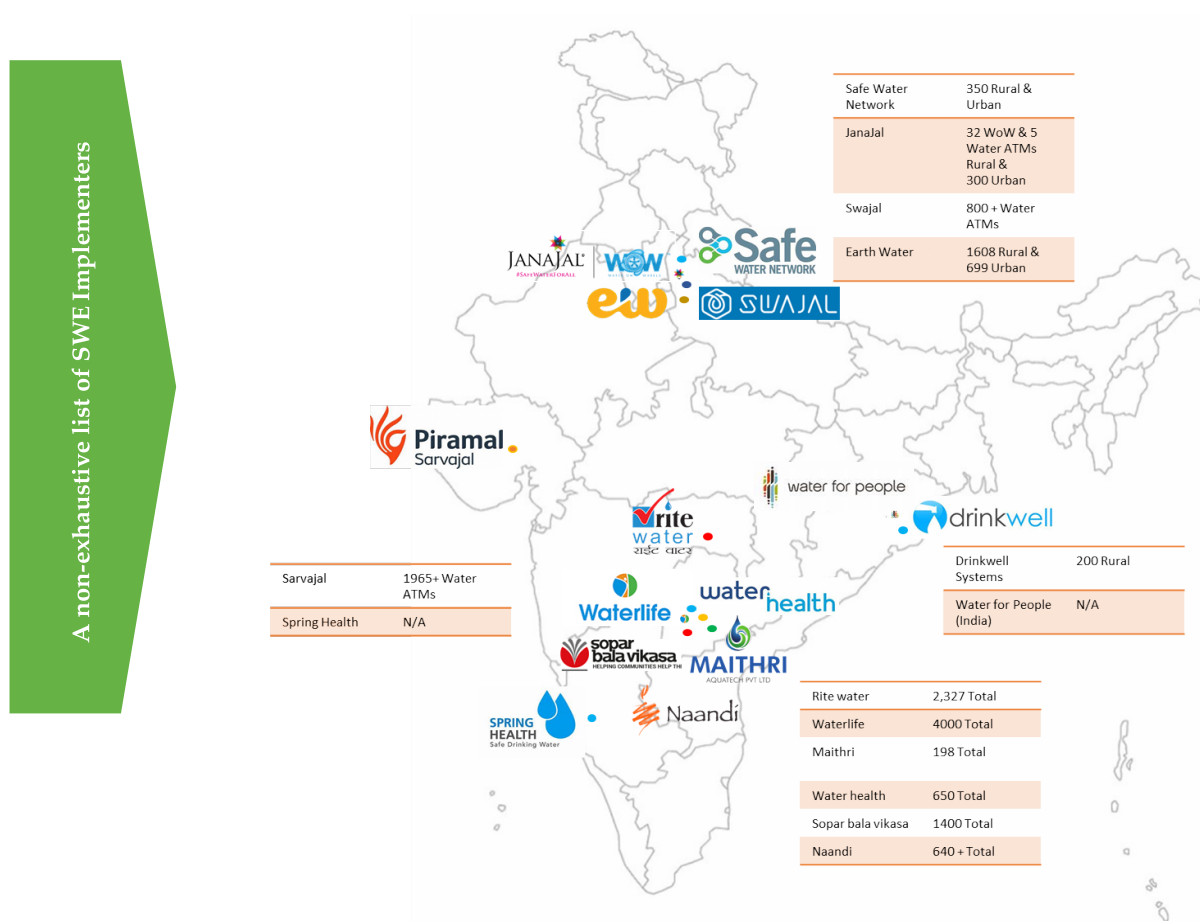
A consumer using coin dispensing system to buy water at Kamrup, Assam.



# SECTION I: INTRODUCTION

Decentralized Safe Water Enterprises (SWE), popularly called Water ATMs, have proven advantages: they are cost-effective, less capital-intensive, and quicker to install than the piped water supply. They have proven their resilience during climate change impacts or pandemics. They fill in the much-needed gap of servicing the underserved, the bottom of the pyramid population, and the consumer on the go in urban and rural regions. Water ATMs complement the piped water supply and provide quick access to the ~100 Million Indians who lack safe drinking water. They provide safe water equitably and inclusively. Approximately 50,000 Water ATMs in India are set up by more than 30 SWE implementers across several states<sup>1</sup>. Since 2019, 20 states have issued tenders for SWEs, of which 55% have been set up in rural and 45% in urban areas. SWEs are increasingly being set up at hospitals, railway stations, metros, and heritage sites. In one of the states of India the government has one of the most significant SWE clusters at 18,500+ to serve its 40 M rural citizens. SWEs are set up across almost all the States in India. The SWEs are community-managed or private/public sector operated with low operational costs. Exhibit 1.1 below is a non-exhaustive list of a few SWE implementors with their presence.

**Exhibit 1. SWE Implementers (Non-Exhaustive)**



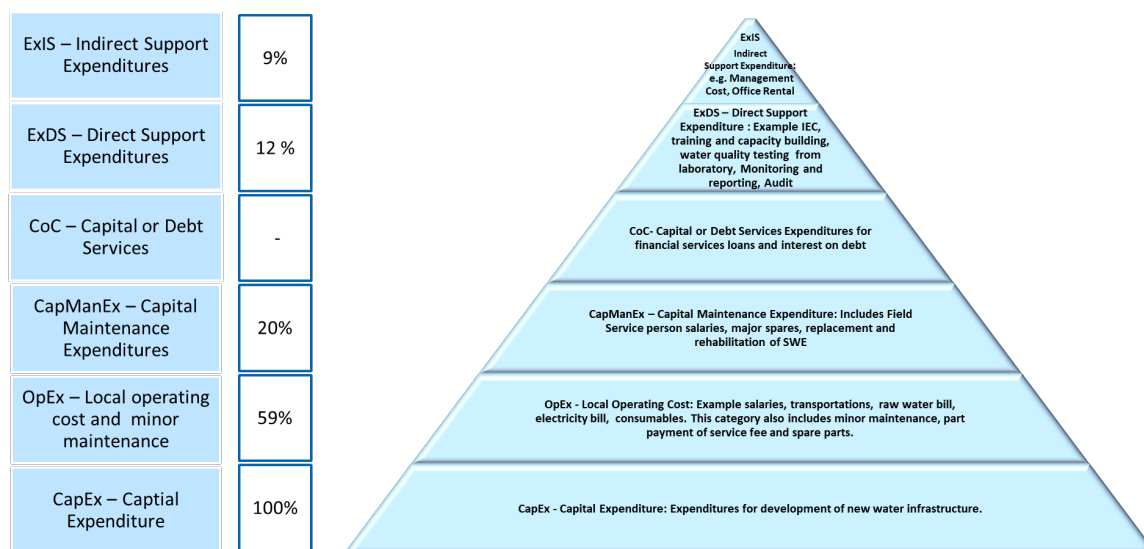
<sup>1</sup> India Sector Review 2018 by Safe Water Network India

In India, the SWE sector is fragmented and difficult to scale up despite the model proving its resilience and reliability of safe drinking water. In 2018, USAID and Safe Water Network India (SWNI) launched the Safe Water Enterprise (SWE) Alliance, a multi-sectoral collaboration to develop an ecosystem for sustaining and scaling Safe Water Enterprises. <sup>2</sup> The SWE Alliance comprises SWE practitioners, entrepreneurs, technology providers, service providers, funders, and knowledge providers who work together to align on standards and promote policy reform to accelerate the scale-up of SWEs. Together they contribute to achieving UN Sustainable Development Goal 6.1, universal access to safe water for all.

## LIFECYCLE COST OF SAFE WATER ENTERPRISES

For SWEs to achieve financial sustainability, it is critical to cover the total life cycle costs – OpEx -costs of operations, CapManEx- preventative maintenance, capital maintenance, support costs direct or indirect, and the CapEx -Capital cost so that reliable and sustainable water service is provided throughout the life of SWE. These costs are defined below.

**Exhibit 2. Lifecycle Costs for SWEs**



## DEFINITIONS

**CapEx:** Capital Expenditure, which is the capital invested in constructing fixed assets, largely infrastructure. The total Capital Expenditure (CapEx) required to set up a SWEs depends on the treatment technology deployed, the unit’s capacity, technological innovations, water extraction cost, and civil construction.

**OpEx:** This refers to the local Operating cost that includes the operator’s salary, entrepreneur return, costs of monthly electricity, raw water source, consumables, sim cards, daily digital reporting, and water quality testing using Field Test Kits (FTKs).

**CapManEx:** This refers to the (occasional) costs of renewing (replacing, refurbishing, restoring) and servicing, stocks and spares, and technicians.

**ExDS:** The Direct Support expenditure costs include IEC activities, training, monitoring, reporting, audit, management costs, and rentals.

**ExIS:** The Indirect Support expenditure costs which include trained skilled professionals, technicians, and management cost

<sup>2</sup> <https://swealliance.org/>

### Exhibit 3. CapEx to set up an SWE

Particulars	Amount(USD)	Amount INR	% of Total Cost
Land for housing SWE and Borewell for raw water source	2,500	2,00,000	14%
Building (renovation)	1,250	1,00,000	7%
Electricals /5 KL Water Tank/Pump/Piping etc.	625	50,000	4%
<b>Sub - Total</b>	<b>4,375</b>	<b>3,50,000</b>	<b>24%</b>
Water Treatment Plant (1000 LPH) incl. RMS; automatic dispensing; digital payment	9,375	7,50,000	53%
Civil works - SWE design and layout; dispensing points water supply	3,125	2,50,000	18%
IEC and consumer activation	900	72,000	5%
<b>Sub - Total</b>	<b>13,400</b>	<b>10,72,000</b>	<b>76%</b>
<b>(1\$ =INR 80)</b>	<b>17,775</b>	<b>14,22,000</b>	<b>100%</b>
<b>Grand Total</b>			

OpEx: Operating Expenditure is the recurrent (regular, ongoing) costs for operating water systems. The operating cost would include operators' salaries, electricity and other staff, consumables & chemicals, materials, continued training & monitoring, and consumer activation cost. These costs are further divided into

- 1) **Direct operating costs** covered by the revenue include operating expenses such as salaries, electricity, chemicals, and consumables travel & overhead expenses to the extent the water revenues cannot pay for it.
- 2) **Cluster management costs (ExDS)** that are covered by grants/donor subsidies, including
  - Repair & maintenance expenses: SWEs tie-up or set up a technical services agency. These agencies are responsible for providing installation and commissioning services, on-call technical support, has a ready inventory of common spares and the necessary technological bandwidth to provide exception reporting.
  - Monitoring & evaluation costs which include the cost of personnel engaged in collating data on sales, revenues, costs, etc. on a monthly basis and sharing it as dashboards to ensure cluster operational sustenance.

### Exhibit 4. Breakup of OpEx

Particulars	Amount (USD)	Amount INR)	% of Total Cost
Operator Salary (Minimum wages)	40-180	3000-14,000	~19%
Electricity/Power Cost	40	3,200	15%
Chemicals & Consumables	15	1,200	3%
Other expenses	15	1,200	2%
Field Support cost	50-60	4000-5,000	~20%
<b>Grand Total</b>	<b>175</b>	<b>14,000</b>	<b>59%</b>

### Water Pricing

The pricing for water is affordable based on the MoU with the local governing authority the ULB in cities and the Gram Panchayat in rural. The affordability usually makes it difficult to reach full CapManEx making it one of the main reasons for high slippages in

the sector. The private sector is reluctant to participate as the SWE tenders are not fair to risk leaving the CapEx, ExDS and ExIS to be borne by them.

	Amount (USD)	Amount (INR)	Amount (USD)	Amount (INR)
	Rural		Urban	
1 liter	0.012-0.024	1-2	0.012-0.024	1-2
5 Liter	0.036	3	0.060	5
20 Liter	0.060	5	0.244	20
25 Liter	0.085	7	0.304	25





A consumer using Barcode system to buy water in New Delhi.

## SECTION II: SWE OPERATIONAL AND FINANCIAL PERFORMANCE

The need for safe drinking water from SWEs stems from the poor quality of raw water and the challenge of safe water access, especially in the expanding urban low-economic communities that rely on tanker water. Various SWEs have emerged in the last two decades, and these enterprises extend beyond the piped water network and provide services at the community level and large footfall public spaces.

### Operating Models for SWEs

Safe Water Enterprises fall broadly into three basic categories of economic models which include public-private partnerships (PPPs), company-owned and operated (COO), and company-owned, community-operated (COCO). Each has benefits and risks to the various stakeholders, as well as a range of funding and asset ownership structures.

Exhibit 5. SWE Operating Models in the Sector



SWEs have been limited to either being implementers as part of Government tenders or as Corporate social responsibility (CSR) partners. They are usually starved of fund/capital. Therefore, there is a need for new-age innovative operating models that can attract significant funding to enable the scale-up of SWEs. Each model has different characteristics in providing initial Capex investment, who maintains it, who regulates the prices, the risks for the contracting authority and the contractor, who collects user fees, and the project impact envisaged. All these factors for the listed models are summarized below.

Exhibit 6. Prevailing private sector engagement models

Comparative Analysis	Engineering, Procurement, and Construction (EPC)	Built-Operate-Transfer (BOT) – User fee	Build-Operate-Transfer (BOT) – Annuity	Hybrid Annuity Model (HAM)	Social Entrepreneur Model (w/Entr/SHG/Com)
Investment	Government	Private	Private investment for construction and balance deferred payments	40% Government and balance deferred payments	Land – Social Entr Equipment – Philanthropic capital
O&M	Included in contract as concessionaire's responsibility				Independent Service Entity (paid out of rev)
User Fee – Collection	Awarding authority	Concessionaire/ Private developer	Awarding authority	Awarding authority	Affordable pricing to cover OpEx
Funding from financial institutions	None	Majority funded by FIs	Substantial funding from FIs	Up to 40% of the project cost	Limited
Ease of contract management	Comparatively simple and easy to administer	Requires constant monitoring			Scalable and Replicable
Project Impact	Low tender pricing, little focus on capacity building, results in higher slippages				High – community buy-in

Each of these models carries a different set of risks for the Private sector and the Public authority. Further, the risks can be transferred as well as mitigated through contractual terms. Before entering into any contract, the risks should be (a) Mapped for their likelihood, (b) Financial impact evaluated, (c) Allocated among stakeholders, (d) Mitigation strategy outlined, if possible (e) and a priority rating assigned.

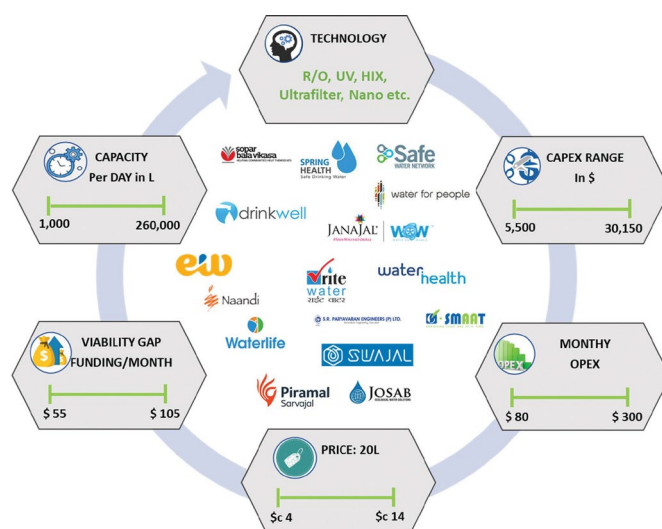
### Exhibit 7. Risk Mapping for SWEs



Private SWE players are for-profit organizations who rope in private investors and seed funding investments to achieve greater efficiency in their operations. These investors are focused on generating long-term returns that are financially, environmentally, and socially sustainable. Most of these SWE players face operational and financial challenges. Over the years, many players have shut down their SWE operations.










Many existing SWEs face operational challenges due to the non-availability of raw water, lack of an authorized electricity connection, absence of spares locally, or trained technical support staff. Demand is low due to the lack of awareness and lower revenues that do not support financial viability. They compete with the free water provided by municipal corporations in the city and other water sources like handpumps, wells, etc., in the rural regions. Similarly, Water ATMs set up in major cities are installed via a public tender process with pricing constraints and limited operational and maintenance support resulting in a “Fit and Forget” approach. Hence many Water ATMs set up have gone defunct within a few months to a year of installation due to the absence of O&M provisioning or low demand.<sup>3</sup> Free water pricing/inadequate cost recovery norms, unavailability of technical support, lack of provision for O&M expenses, and no requirement for high-value capital replacements/ asset renewal are a few of the key challenges the sector faces. Exhibit 2.4 below illustrates the varied range in which SWE players operate, along with their financial and technical capabilities.

### Exhibit 8. SWE Implementers and their Financial, Operational & Technical Models



<sup>3</sup> <https://www.thehindia.com/news/cities/hyderabad/many-water-atms-go-defunct-across-city-530338>

## Exhibit 9. Summary of Operating Models

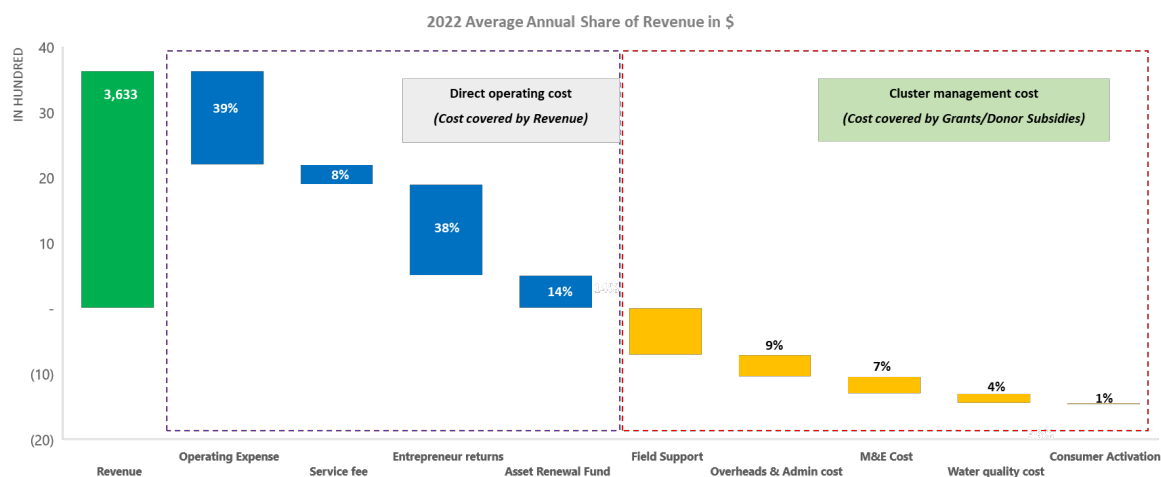
Model Variables		PPP		COO	COCO			
		BOT/BOOT (Tariff/Annuity)	Management contracts		Concession (Cross – over b/w PPP & COCO)	SHGs	Entrepreneur	Community
<b>CapEx &amp; its funding</b>   	Water Source	Concessionaire builds infrastructure based on tender specifications	The asset is handed over to the concessionaire by the Awarding authority	Private Entity responsible for funding, installation, operation, and maintenance of the system	Awarding authority plans, licenses, and awards work. Assume a statutory role to ensure the public interest	Provided by the local body (Gram Panchayat/ ULB)	Provided by Entrepreneur	Provided by the local body (Gram Panchayat/ ULB)
	Land & Building							
<b>CapManEx (Capital Maintenance Expenditure)</b> 		Usually not part of the project cost. Follow a project approach rather than a service delivery approach	NA	Private operators usually provide for depreciation but do not set aside capital for CapManEx	Usually not budgeted as part of the project cost. However, some NGOs collect fixed amounts as a contribution towards a reserve for major repairs and replacement of the equipment at the end of its useful life			
<b>Pricing</b> 	(Indicative Pricing)	Fixed tariff under tender (Rs. 2-3/ 20L)	Fixed management fee	Price fixed by the private Entity (Rs. 5-7/20L)	Fixed under the concessionaire agreement	Affordable pricing fixed by the NGO along with the local governing body under a third-party agreement		
<b>Opex</b> 	Operator Salary, Electricity, Rent, Chemicals, Service	Operating Expenses are met out of revenues collected from the sale of water	Operating Expenses are met out of revenues collected from the sale of water	Paid out of Revenues collected from the sale of water	Operating Expenses are met out of revenues collected from the sale of water			
<b>Social Impact</b> 	Community Outreach Local capacity building Sale at kiosk Sustainability	Given low tender pricing, it is a CapEx-centric model, with low or no focus on local skill-building, or community engagement, and also has usually higher slippages		Profit pressures can lead to unaffordable pricing and/or unreliable quality	High due to sites allocated by awarding authority are hospitals, courts, etc. for benefit of general public	Highest as the SHGs work effectively, especially in empowering women in the community	Entrepreneurs usually maximize gains through distribution at a higher price as compared to price at a kiosk	Community models lack the initiative to increase sales and, thereby, consumer participation.
<b>Financial Viability</b> 	Ability to pay (Consumer)	Higher ability to pay as prices are affordable (Contracts are awarded on an L1 basis)	NA	Tend to operate in communities with relatively higher ability to pay	Prices set by awarding authority ensure it's within the ability to pay for the consumer	Communities usually adopt the model with low income and hence the low ability to pay	High as Entrepreneurs are business-minded and the model is common in communities with relatively higher income	Communities usually adopt the model with low income and, therefore, low ability to pay
	Willingness to pay (Consumer)	High		NA	Medium	High	Low	Medium
<b>Asset Ownership</b> 		Concessionaire transfers to Awarding authority post project completion	Awarding Authority	Private Entity	Ownership gets transferred to the community after a fixed time frame/ fixed repayment			



## UNDERSTANDING THE FINANCIAL PERFORMANCE

Financial sustainability has been one of the biggest bottlenecks in scaling Safe Water Enterprises. Revenues from the water sold at the SWEs are priced affordably, usually at Rs. 5/20L, \$c 7/20L. These are sufficient to cover operating costs, including regular repairs and preventive maintenance. Refer to Exhibit 2.5, which shows the typical revenue share for various expenditure heads in an optimized SWE operation.

**Exhibit 10. Typical Financial Performance of SWEs**



Revenues from water sales cover the costs at the local operating level, including operator's salaries, electricity, chemicals, and consumables, and the cost of regular repair and maintenance, the cluster management costs associated with ensuring sustainability are not covered by revenues. SWEs need performance linked result-based viability gap funding support, both direct and indirect 20% for field support, 1% for consumer activation, 4% for water quality testing and 7% for Monitoring & Evaluation, and 9% for overhead and admin cost. The total VGF needed is approximately 41%.

# NIZAM'S INSTITUTE OF MEDIC

Water Knowledge  
**SEWAH** Su  
A



Free water available to all at Nizam's Institute of Medical Sciences, Hyderabad



## SECTION III: VIABILITY GAP AND SUBSIDIES

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Governments worldwide spend significant funds subsidizing the water and sanitation sectors—around \$ 320 B annually, excluding China and India. These subsidies help keep the prices of services below market rates. However, these subsidies generally target networked services, benefiting wealthier households with existing water or sewerage connections. The World Bank estimates indicate that the present value of additional investment needed in WASH through 2030 will exceed \$ 1.7 T. Estimates place the cost of subsidies associated with the OpEx of existing water supply infrastructure at \$ 289 B excluding India & China.<sup>4</sup>

Many private-sector players show a willingness to expand their services footprint but do not have the capital for investment and hence seek public subsidies and investments. Therefore, many such SWEs need constant viability gap funding support, both direct and indirect, and to support weaker SWEs, a portfolio approach helps cross-subsidize. Annexure 1 provides evaluation of funding mechanism based on needs and requisite preconditions.

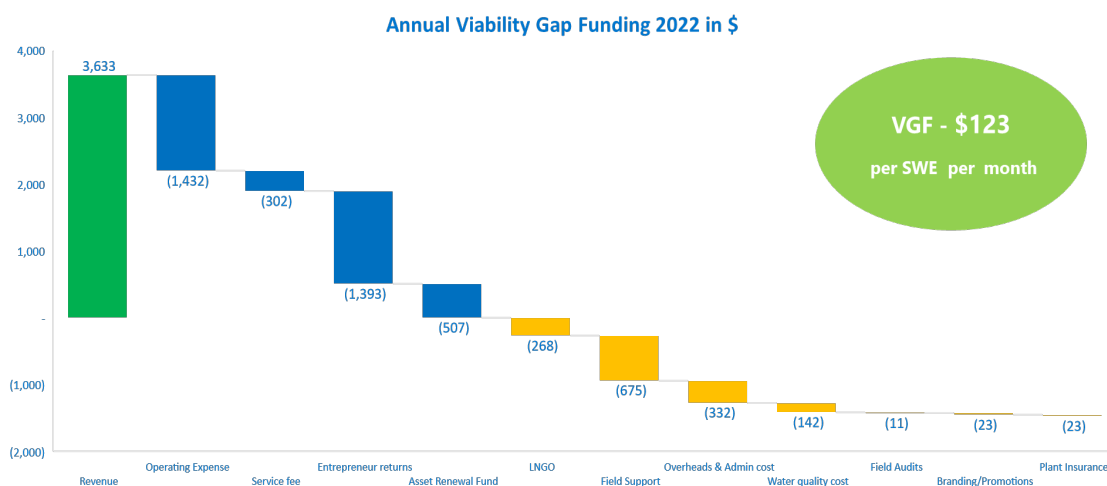
Currently, most SWEs enjoy positive gross margins after meeting all local operating costs but lose money when the cluster management costs and asset renewal fund (ARF) are factored in. As a result, enterprises often fail to realize funds for replacement costs and find it difficult to sustain themselves financially in machinery breakdowns or maintenance requirements. Donor funds pay for the costs of engaging the third-party entities to meet other expenses essential for cluster sustainability, un-funded from revenues. The water revenues do not cover the Monitoring & Evaluation (M&E) cost, including Water Quality Testing and Field Supervision costs. To maintain optimal performance, adherence to pricing, and water quality monitoring, the Field Service Entity trains the Station Operators and Managers to follow a carefully designed protocol of (a) Station-level daily quality checks and (b) Quality monitoring by testing at qualified laboratories (c) collecting financial data. It ensures water quality, reliable delivery, and price compliance. The donors fund the quality testing through an accredited lab to provide the consumer's health and protect the donor's reputation.

The SWE Implementor extends field support and usually has a lean team that supervises coordinates, and facilitates all the other stakeholders to perform their roles optimally. It is also responsible for coordinating with the stakeholders like Gram Panchayat, and district administrators to get the necessary approvals and comply with all the applicable regulations. This team works closely with the M&E team to ensure milestones on volume growth, household penetration, collections towards asset renewal funds, relocations of unviable sites, branding, promotions, etc. Field Audits & Plant insurance of the Water ATMs are verified and audited monthly by an independent third party, adding authenticity to the data collected.

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<sup>4</sup> Doing More with Less: Smarter Subsidies for Water Supply and Sanitation. World Bank, Washington, DC.

## Exhibit 11. Annual average breakup of cost and viability gap funding of SWEs



For the survival and sustainability of Safe Water Enterprises, subsidies can be powerful and progressive tools ensuring that all people benefit from reliable water supply services. Subsidies need to be smartly targeted, transparent, tapering, and efficient. The reforms recommended include:

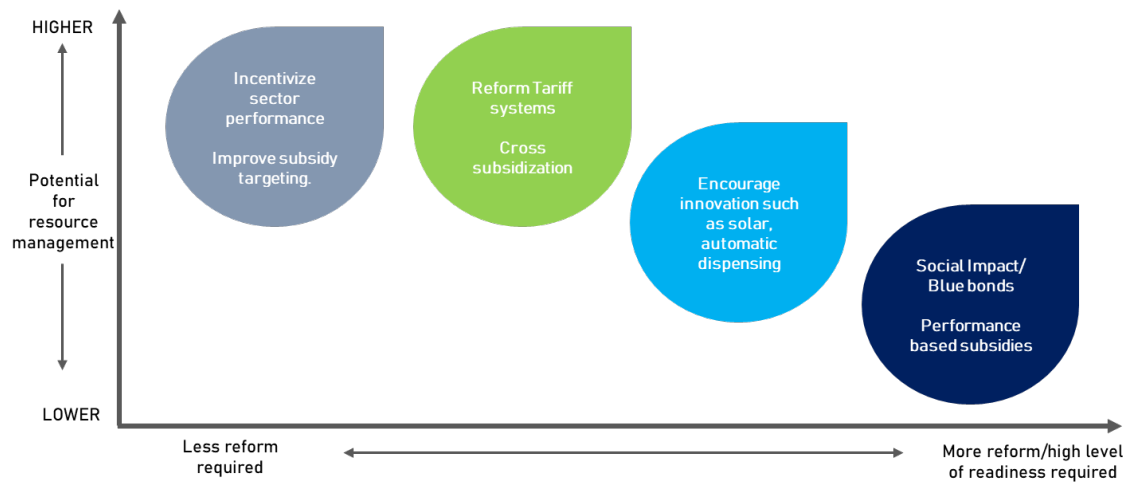
- Promoting subsidies that help extend services to under-or unserved areas by reducing upfront costs and by spreading out costs over time, such as through no- or low-interest loans
- Identifying valid and feasible indicators correlated with income: Design CapEx subsidies to attract and leverage additional long-term sources of capital.
- Viability Gap funding grants as a subsidy tool that the Governments can use to incentivize private investment
- Performance-linked subsidies to be disbursed on achieving measurable outcomes can be an effective tool for results-based financing.

Attracting the necessary investment to the sector depends on an ability to reform the sector by strengthening or otherwise addressing a set of key foundational elements: the regulatory environment, the governance structure, the financial/technical/commercial performance of service providers, and the resulting perception of risk by investors. The government alone cannot address all of these issues, but it can influence the direction of reform – either on their initiative or in partnership with sector counterparts.

Private players in the sector understand the dependence and the water crisis and are never in favor of water profiteering but at the same time to be sustainable, they require support from their governments and work together on the regulatory environment, financing needs, pricing, and the market size, and contracting will help the players to strive and thrive.

All the following strategies in Exhibit 12. aim to mobilize more financing and funding to the sector, but there is a real challenge to reforms. Safe water providers are generally less able in terms of human & financial resources and the required skills to implement sector policies; hence the need for government and political leadership will always be critical to support the scale of the changes required.

## Exhibit 12. Service Subsidy to achieve desired social outcomes



### Potential for Resource Management and Reforms

- Maximize value from existing public funding/development partners that use results-based financing and better subsidy targeting would require lesser reforms
- Mobilizing more funds by cross-subsidization & reform tariff systems by reviewing the structure of tariffs including affordability considerations for the poorest. If water tariffs are low, the state ends up subsidizing the rich. Hence there will be a need for telescopic pricing.
- Using innovations like solar panels etc. can help the sector grow and would require a high level of reforms
- Social impact bonds/Result based subsidies are contracts with the public sector, with payment-by-results contracts that leverage private capital to achieve better social outcomes

Support of this project.

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மனை ஒதுக்காயல்



**தயவு செய்து ஒவ்வொரு முறையும் கடைபிடிக்கவும்**

UP ● ENTER → \* முதலில் ENTER பட்டனை அழுத்தி "கார்டை" (CARD) - ஐ காண்பித்து (BALANCE) - ஐ தெரிந்து கொள்ளவும்.

DOWN ● CANCEL

SHOW CARD HERE → \* சத்தம் நிற்கும் வரை "கார்டை" (CARD) - ஐ காண்பிக்க வேண்டும்.

\* முதலில் நெ.1 குழாயில் குழநீர் விழக்கவும், நெ.1 குழாயில் பாதி குழநீர் நிரம்பும் முன் நெ.2 குழாயில் குழநீர் விழக்கவும்

தொழில்நுட்பக் கூட்டாண்மை



1 கீதிகரிக்கப்பட்ட குழநீர் 2



A family using RFID system to buy water in Chennai

## SECTION IV: SUBSIDY MODELS

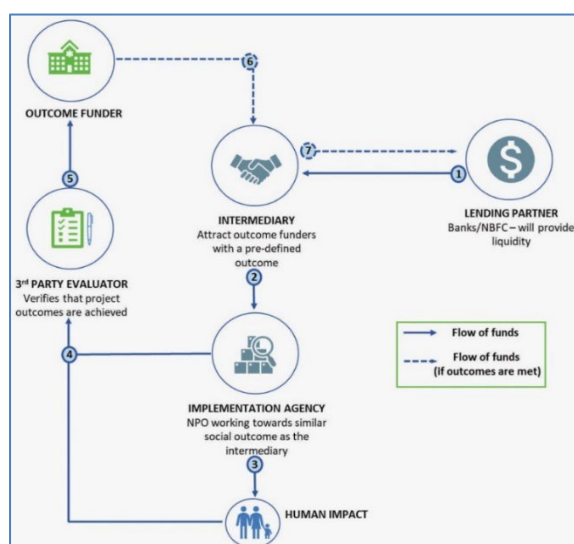
### Result-Based Funding - Innovative Financing Vehicle

A performance-based contract that allows a financier, usually a philanthropic or governmental/public entity, to hire and pay for the services of a service provider, such as an impact-oriented enterprise or NGO, to execute a socially or environmentally beneficial initiative during an agreed-upon timeline. Contrary to traditional development funding, the donor is not paying for certain activities. Rather, a goal (output or outcome) is articulated, and the service provider is given relative flexibility in terms of how this goal will be achieved. The enterprise that provides the service will only receive payment once certain indicators for success have been met. Pay-out will accordingly often be broken down into several installments that are tied to concrete milestones.

Performance/ output-based management contracts usually involve the management of the utility being outsourced to a private operator. Some other models have the private player bringing in technology, and expertise to work alongside existing management. These also require achieving specific targets or goals. A typical Pay-for success model has the following structure:

- i. A lending/ funding agency would provide upfront capital investment (multi-year unsecured lending facility)
- ii. The intermediary would structure, coordinate and fund the Implementation agency to create social impact.
- iii. The implementation agency would deliver services to the beneficiary (Human impact), resulting in direct or indirect benefits due to the projects' primary or secondary objectives.
- iv. 3rd party evaluator evaluates whether the outcome is achieved.
- v. Outcome funder (Government) who is willing to pay for a predetermined set of outcomes will receive and validate the objectives of the project

**Exhibit 13. Performance-based management structure**



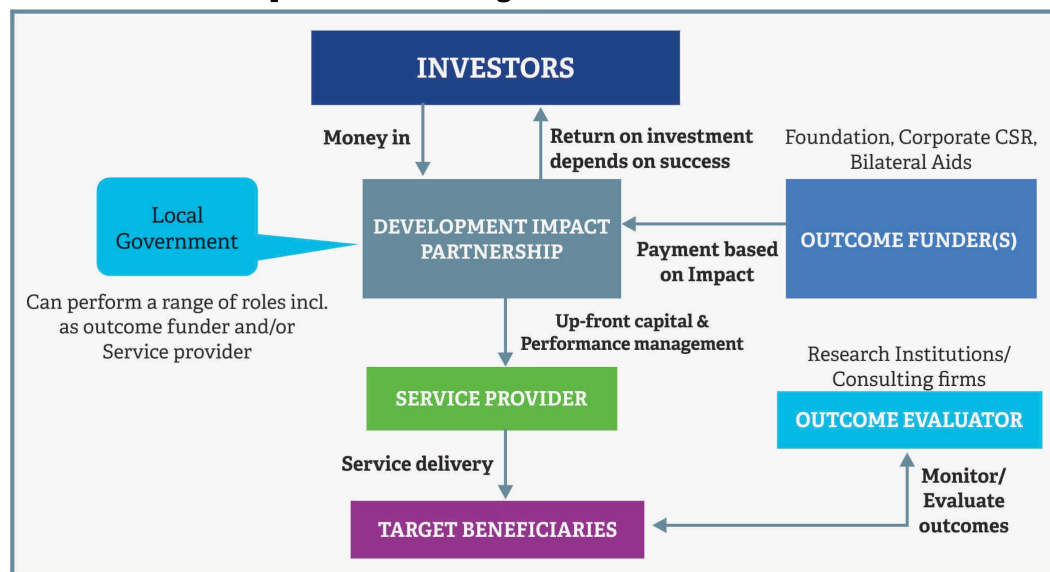
An initial portion of the funds from the outcome funder can be held in escrow by the intermediary to help make interest payments to the lender. In contrast, the principal payments would be made only upon the achievement of outcomes. The credit risk in this structure would be determined by the implementation agency's ability to achieve the results, which would release the payments from the outcome funder. Therefore, these funding structures would only work for well-tested programs ready to be scaled up as only these could provide the lending partner enough confidence to fund these assets. This structure can exist without a lending partner where funding is aggregated by an

intermediary and disbursed to implementation agencies. However, a commercial lender can bring an immediate pool of capital of larger sizes that would otherwise be harder to mobilize.

## Impact Bonds - Innovative Financing Vehicle for PPPs

Impact bonds have gained momentum in recent years because they offer an opportunity to translate socially desirable goals into measurable economic returns. Impact bonds are highly structured products that require collaboration between multiple stakeholders, quality data collection, and a sophisticated and stable legal framework. Thus, it can be challenging to implement in low and middle-income countries. The Impact Bond structure means that awarding authorities only pay when agreed outcomes have been achieved and that implementers are provided with working capital by socially motivated investors. The figure below demonstrates a typical structure for such an instrument.

**Exhibit 14. Social Impact Investors/High Net-worth Individuals**



Impact bonds are a subset of sustainable development bonds, which are debt securities issued by private or public entities to finance activities or projects linked to sustainable development. Bonds can also be differentiated by the nature of their return or focus sector.

The most common instruments are Green Bonds, Microfinance Bonds and Charity Bonds, Social Impact Bonds, Development Impact Bonds, and Environmental Impact Bonds. Social Impact Bonds (SIB), Development Impact Bonds (DIB), and Environmental Impact Bonds (EIB) share the same mechanism. Private investors invest in a social (SIB and DIB) or environmental (EIB) service provider who, if successful, delivers both social value and public sector cost savings. In the case of a SIB, the local Government repays the investors (principal + interests) according to the project's success. For a DIB, a development agency or a charity foundation repays the investors as the Government of a developing country cannot afford it.

Impact bonds have been contracted in developing countries out of 194 global impact bonds. In India, with three contracted deals and several more in design, there is an appetite for using impact investment across various social sectors, including health and sanitation, increasing power reach, and reducing malnutrition. The Impact bond market is currently primarily driven by international foundations on the investor and outcome funder side. However, a lot of movement has been built around creating a landscape and supporting ecosystem that hopes to serve an investment intermediary's function in creating a pay-for-success product

Impact bonds are still in a nascent stage globally and particularly in developing countries. To expand the scale and reach of impact bonds, there is a need to expand the evidence base,



build capacity for the service providers, educate the potential outcome funders, and potentially impact investors and have supportive legislation. As impact bonds and the **pay-for-success model** gain further momentum, we feel it can generate greater interest from the private sector to participate in a key infrastructure sector like water and contribute to SDG 6.1.

## Operational Viability Gap Funding

A State government adopted the viability gap funding model to ensure affordability and sustainability. The state had installed Water Purification Plants with dispensing machines to expand drinking water access for all, with over 18,500+ water ATMs in the State at Rs 5 for 20 liters through various tenders. Due to the poor volumes in these ATMs, the state decided to outsource the management of 8000 water ATMs to private agencies to ensure the 24x7 availability of safe drinking water to people. With expenditure overshooting the revenue in the management of the ATMs, the government decided to directly reimburse the difference through the cash viability gap funding (VGF) of Rs 36, 000 per year / \$ 450 per year model to the agency for five years, costing nearly Rs 233 crore (\$ 30 M). The Government funded conversion of all drinking water ATMs would soon have a smart card-based system to eliminate the coin shortage and physical damage to the water ATM. The Government had earlier extended power subsidies costing (supply-side subsidies) nearly Rs 145 crore (\$ 20 M) instead of cash subsidies or VGF. <sup>5</sup>

In 2019, to improve the performance of decentralized water purification systems and to address the functioning of these Water ATMs, the Rural Drinking Water Supply & Sanitation Department (RDWS&SD) engaged one of our SWE Alliance partners to assist in the multi-year program with the target of ensuring the reliable and sustainable provision of safe water to all communities within the WPP service area.

### Exhibit 15. Technical Assistance provided to a State Government

Before Technical assistance



After Technical assistance



Improve Sustainable Supply for 30 Million People



- 18,500 Water ATMs supported
- 8,000 O&M contracts awarded
- 800 Water ATM operators trained

## Free Water Mandate Support

**Greater Hyderabad Municipal Corporation (GHMC)** mandated an NGO to set up water ATMs in hospitals and provided subsidies in kind with free water and electricity and reimbursement of operating costs at actuals. CSR Donors funded the capital. This Mandate was proposed recently as Greater Hyderabad Municipal Corporation previously

<sup>5</sup> Safe Water Network Analysis

in 2017 had installed 200 installed water ATMs and within a year all of them become defunct due to operational and maintenance issues.

The Water ATMs are a huge hit amongst the public and the corporation has planned to install another 300 kiosks across the city. The GHMC has called for requests for proposals from private SWE players under the Build, Operate, and Transfer (BOT) model as they aim to set up water kiosks across 30 locations.<sup>6</sup>

## Mixed subsidy – Cash and Kind

### Examples of pro-poor Subsidy in Piped Water Supply and Telescopic Pricing:

Direct public subsidy: Introduce pro-poor subsidies to meet expenses similar to those provided by the government for piped water supply. The SWE water delivery can also be linked to DBT using Aadhaar Card.

Under the scheme, the Delhi Jal Board provides 20,000 liters of free piped water to 0.53 M households per month free of charge. This amounted to approx. \$ 50 M (INR 400 crores) in water subsidy. The scheme's implementation led to an increase in the number of available water meters across the city. The government has further introduced telescopic water pricing in the city for the rich to subsidize the poor.

The Tamil Nadu government had extended its free drinking water supply scheme for households consuming less than 20,000 liters annually. Under the scheme, eligible households are entitled to receive a free water supply of up to 20,000 liters annually and around 1.2 million households will benefit from this scheme. The Tamil Nadu government has allocated a significant amount of funds for water supply and sanitation infrastructure development in the state.<sup>7</sup>

The Andhra Pradesh government announced plans to supply free drinking water to urban poor households in the state. Under the scheme, households with an annual income of less than Rs. 0.5 million and living in urban areas with a population of over 50,000 will receive a free water supply of up to 15 kiloliters per month. The scheme is expected to benefit around 1.6 million households in the state.<sup>8</sup>

## OTHER FUNDING MODELS

- **Municipal Bonds** are another popular source of funding that has been used by ULBs to access funding from financial markets over the last two decades. These are bonds issued by ULBs like municipal corporations to raise money for public projects and are repaid from returns generated by such projects or tax revenue. In India, the Bengaluru Municipal Corporation issued municipal bonds for the first time in 1997 for financing city roads and drains for a total of INR 125 crores. Other local bodies in Nashik, Nagpur, Ludhiana, Lucknow, Madurai, etc., have also accessed the capital markets through municipal bonds. So far, eight local bodies in India have raised INR 3,390 crores via municipal bonds. In 2017, the Pune Municipal Corporation (PMC) raised INR 200 crores for the Smart City project.
- **Listing on Stock Exchange:** Another latest trend has been the change of water being treated in yet another community on Wall Street, highlighting worries that the life-sustaining natural resource may become scarce across more of the world. Recently, California put a price on the water by introducing futures contracts, a first

<sup>6</sup> <https://timesofindia.indiatimes.com/city/hyderabad/greater-hyderabad-municipal-corporation-to-install-water-booths-fewer-atms-this-time-after-previous-failure/articleshow/99020839.cms>

<sup>7</sup> <https://economictimes.indiatimes.com/news/politics-and-nation/tamil-nadu-chief-minister-j-jayalalithaa-launches-free-amma-drinking-water-scheme/articleshow/50973968.cms>

<sup>8</sup> <https://timesofindia.indiatimes.com/city/vijayawada/andhra-pradesh-government-to-supply-free-drinking-water-to-urban-poor/articleshow/85318809.cms>

of their kind in the U.S. as wildfires ravaged the West Coast and as California emerged from an eight-year drought. The futures contract is tied to the Nasdaq Veles California Water Index, which measures the volume-weighted average water price. The index sets a weekly benchmark spot price of water rights in California, underpinned by the volume-weighted average of the transaction prices in the state's five largest and most actively traded markets. According to experts, the future will help water users manage risk and better align supply and demand.

## OTHER OPTIMISATION ROUTES

- **Shared Resource Pool:** Resources available on an open platform for sharing to optimize resources like IEC, community awareness and sensitization programs, training, capacity-building tools, M&E frameworks, etc. Where possible if two or more SWE implementers have SWEs in the same geography field service personnel costs can be shared.
- **Capacity Utilization:** Most of the Water ATMs are either 1000L per hour or 750L per hour plant. Their capacities are usually underutilized. JanaJal's 'Water on Wheels' is a unique example where they procure safe drinking water from water ATMs in the geography for distribution through an annual rate contract and do not thus invest in high CapEx Water ATMs or spend in its production, governance, etc.

# WAY FORWARD

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The burden of delivering water to all households or expanding access to potable water is not borne by the Government alone. Private operators' role is becoming more and more essential in achieving this goal. It is beneficial for the Government, the citizens, and the private players if specific steps are taken toward facilitating a more enabling environment for public-private partnerships to thrive. This can be bolstered by an articulated stand from the national Government or even state Governments to allow stakeholders and utilities to strengthen their position in the sector.

Several municipalities are not in great financial health, which leads to investment gaps, therefore support from the central or state authorities becomes critical to their success. Realistic pricing, guidance on tariff structures, reduction of Non-Revenue water and subsidies can also help improve the sector's viability.

For SWEs to scale, we need both institutional and financial policy reforms. A true spirit of public-private partnerships is required, with fair-risk tenders, models that can attract private funding, single-window clearance to facilitate implementation, development of skilled manpower, and benchmarking of SWE performance. Scaling SWEs is very achievable through collaboration and partnerships. As a sector, we have demonstrated that SWEs are viable.

Recent trends indicate a growing interest in water private-public partnerships, and more projects are being contracted. Appropriate interventions can help the private sector play a more significant role, especially in investment and service areas. The overarching goal is for all the players: for-profit corporations, small enterprises, NGOs, and the various Government authorities to work in tandem and support each other. Much work needs to be done to revamp and expand its existing infrastructure in the water sector to provide universal access. If undertaken in a well-planned manner, PPPs in the urban water sector are viable and much-needed alternatives for solving some of the sector's chronic problems.

The Government contacts can split their payments into 60% upfront upon setting up an SWE followed by a quarterly payment upon successful operation of the SWE for the following seven years.

A few crucial sector-wide interventions to mainstream SWEs as a sustainable drinking water supply approach and achieve desired positive impact on public health.

- Recognize that **water cannot be priced fully** and SWEs like the **water utilities need long-term subsidies** and capital to fund the viability gap.
- Pilot more **results framework-based subsidies** designed to fund the viability gap on achievement of desired social outcomes.
- **Build in Life Cycle Costs** to ensure the sustainability of the projects and ensure capital preservation.
- **Incentivize private sector participation** to improve efficiencies and reduce the gap in funding over the longer-term.
- **Promote digital innovations** and reallocate government investments to include sustainability initiatives, e.g., skills building.
- **Developing SWE benchmarks** with social, operational, financial, institutional, and environmental indicators rather than focusing on just cost recovery.

# Annexure

## Evaluation of Funding Mechanisms

SWE implementors need to resort to various funding options in order to achieve their goals. Evaluating these funding mechanisms becomes crucial for them to determine their effectiveness and in order to ensure that resources are distributed equitably and efficiently. A few evaluation criteria considered are positive **cash flow** which indicates financial health and sustainability as they are considered more effective and beneficial in the long term, a **growth rate** that provides support for scaling up, positive **social impact** to society, **data management, ownership model and past experience** as it can provide insight into the likelihood of success and ensure that resources are used efficiently and outcomes are accurately measured and evaluated.

The exhibit below evaluates funding options based on the needs and preconditions. The highest net score (6) is the most favorable funding mechanism (Result-based funding & forgivable loans) whereas equity funding is the least favorable which is scored at (0). Equity funders would opt for organizations/implementors that do not need CapEx funding and would look for positive cash flow, growth with flexible funding options and would be privately owned.

Portfolios/organizations that operate at a deficit would not consider funding options like a blended structure or concessionary debt or commercial loans as they would have a payback method/period. Similarly, the preconditions for each funding mechanism are different. A positive cash flow or portfolio will be a major criterion for a blended structure, debt, and commercial loans whereas other funding mechanisms like Subsidy, Impact bonds, CSR funding would not consider the cash flows as their main criteria would be social impact.

*Exhibit 16: Evaluation of funding mechanism based on needs and requisite preconditions*

	NEEDS					PRE-CONDITIONS						NET SCORE	
	Portfolio Operates at a Deficit	OPC station operates at a deficit	No CapEx Funding Available	Need Flexible Funding	High Risk/ Uncertain Conditions	Positive Cash Flow or Portfolio	Positive Cash Flow of OPC stations	Proven Record of Achieving Outcomes	Social Impact	Strong MEL & Data Management Systems	Cash flow growth rate > interest rate		Privately Owned
Government Subsidy	X	X	X		X				X				2
Philanthropic Funding	X	X			X			X	X	X			4
Social Impact Bond	X		X	X	X			X	X	X			5
Results-Based Financing incl. carbon credits	X			X			X	X	X	X			6
Forgivable Loans	X			X			X	X	X	X			6
Blended structure (concessionary)			X	X		X		X	X	X	X		2
Concessionary Debt			X	X		X		X	X	X	X		2
Blended structure (commercial)			X	X		X		X		X	X		1
Commercial Loans			X	X		X		X		X	X		1
Equity			X	X	X			X			X	X	0

SWE implementors prioritize funding mechanisms that align with the organization's mission and values, and that do not place a significant financial burden on them. Therefore, they are not interested in repayable funding mechanisms, which typically require repayment of the funds over a specified period of time with interest.

USAID Mission Director - Ms. Veena Reddy visits WKRC station in Visakhapatnam



# ABOUT SAFE WATER NETWORK

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We envision a world with healthy, thriving communities that sustainably manage their safe water. Founded in 2006 by the late actor and philanthropist Paul Newman and a group of civic leaders in New York, Safe Water Network catalyzes to ensure that millions of people in underserved communities around the world have access to safe water by leveraging a three-pronged approach:

1. **Field Implementation:** We collaborate with communities to develop sustainable solutions to improve and expand access to safe water.
2. **Technical Assistance:** We strengthen and build capacity with implementers and other stakeholders to improve performance and facilitate replicating sustainable, safe water solutions.
3. **Sector Engagement:** We drive global collaboration and advocacy across the worldwide water ecosystem to reduce sector fragmentation and enable the scale-up of decentralized, market-based water supply.

Safe Water Network's programs offer culturally, socially, and economically sustainable solutions to the lack of access to safe water, one of the world's most urgent and complex challenges.

Safe Water Network operates in India and Ghana, providing direct access to 1.7 million people and indirectly impacting more than 25 million people.

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