

TECH TIMES & BUZZ

Innovations Transforming Water access in Uganda

The Appropriate Technology Centre for Water and Sanitation (ATC) continues to steer Uganda towards practical, sustainable, and scalable, water, sanitation and environmental solutions. By rigorously evaluating technologies against social, economic, technical, skills and know how, environmental, and institutional dimensions, ATC helps ensure that innovations are not only effective but also embraced by communities and viable in the long term.

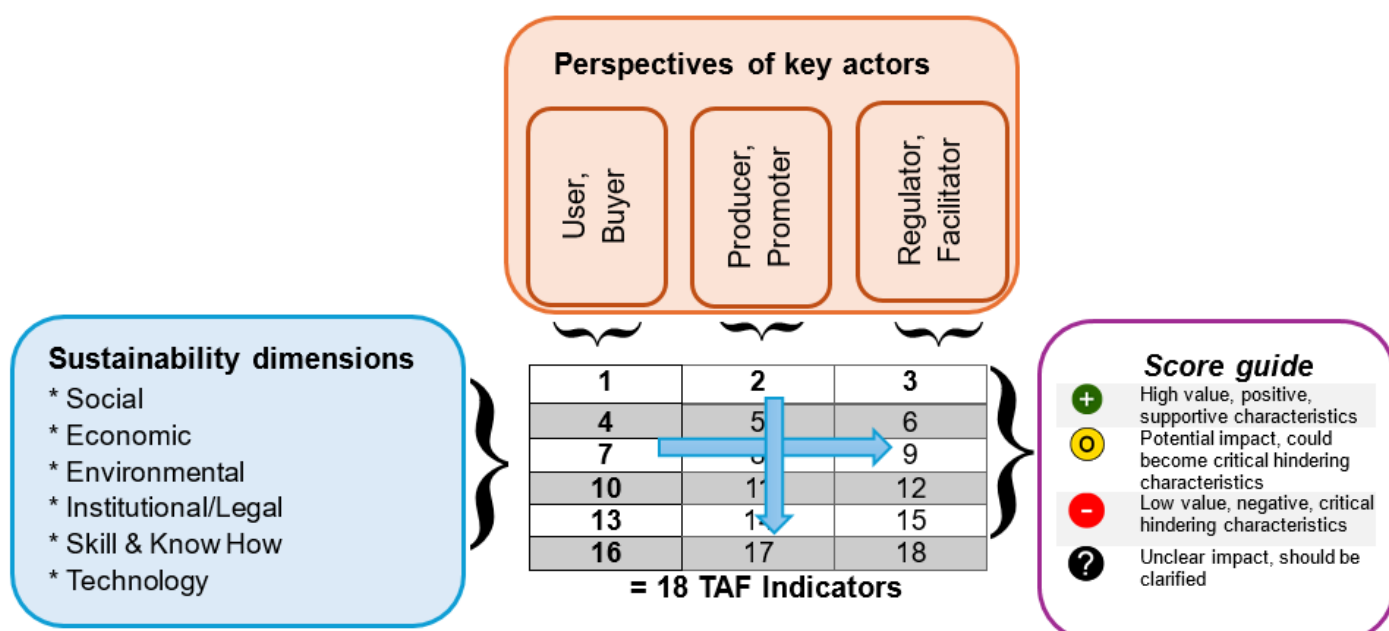
One of the ways ATC shares these insights is through its quarterly dispatches. This edition spotlights breakthrough technologies recently assessed using the **Technology Applicability Framework (TAF)**—a tool that evaluates performance across user, promoter, and regulator perspectives. Each technology is scored transparently, offering clear guidance on strengths, gaps, and readiness for wider adoption.

Real communities!

Real impact!



Visualisation of the TAF assessment process



Ensuring Safe Water in Kamwenge: *Dosatron Chlorinators in Action*

Access to clean water is a lifeline for rural communities, and the Dosatron Chlorinator is proving to be a practical, low-energy solution. This non-electric, inline chlorinator automatically doses chlorine into flowing water, making it ideal for rural piped systems.

Using the TAF tool, ATC together with Water for People, Davis & Shirtliff, Kamwenge District Local Government, and the Ministry of Water and Environment, assessed five Dosatron units installed on water supply systems in Kamwenge district. The assessment produced a dual outcome - identifying both what is working well and where improvements are needed.

The dosatron is cost-effective, energy-free and easy to operate.

It has power to transform rural water supply



Small gaps like a missing flow meter or worn components rippled through the system and ultimately affected dosatron efficacy



Success is not just about installing the dosatron. It is about ensuring that the installed dosatron keeps working safely, serving the intended purpose for years



Dosatron is not a failed technology—it simply needs proper installation, training and routine maintenance to thrive

Four out of five (4/5) units were non-functional. While the Dosatron's non-electric nature is a major advantage, the assessment highlighted a persistent challenge: fluctuating water pressure and flow—often caused by solar pump inconsistencies—can reduce dosing accuracy. Some sites also lacked essential fixtures such as pressure gauges, flow meters, and non-return valves. These gaps created a reliance on manual adjustments and signaled a need for more complete system designs.

The assessment also revealed that four

of the five sites lacked structured handover procedures, preventive maintenance routines, or clear operational manuals, amidst high staff turnover. As a result, mechanical issues were common, causing service interruptions that could have been avoided. Worn rubber and plastic parts also raised environmental concerns, particularly around micro-plastic contamination.

Evidence from the Nkarakara water supply system, the only one with a functional dosatron unit proved that, with proper installation, training, and maintenance, the Dosatron has the potential to deliver safe water reliably for years to come.

		Key perspectives		
		User/ Buyer	Producers/ Providers	Regulators/ Facilitators
Sustainability Dimensions	Social	(1) +	(2) +	(3) +
	Economic	(4) +	(5) +	(6) +
	Environ- mental	(7) +	(8) ?	(9) O
	Institutional & Legal	(10) +	(11) +	(12) +
	Skills & Know-how	(13) O	(14) +	(15) +
	Tech- nology	(16) O	(17) O	(18) O

+ High value, positive, supportive characteristics
 O Potential impact, could become critical, needs follow up
 - Low value, negative, critical hindering characteristics
 ? Unclear impact, should be clarified

Assessment results for Dosatron in-line Chlorination technology

Dosatron performance at a glance

- ▶ 12 indicators scored green
- ▶ 05 indicators scored yellow
- ▶ 01 indicator scored black - issues relating to environmental concerns



From Breakdown to Breakthrough: - *Poldaw Riser System Ends Borehole Corrosion and Reinvigorates Masindi's Water Supply*

Reliable water is the heartbeat of thriving communities, and the Poldaw Rising Main is proving to be a game-changer- reducing borehole breakdowns and no-functionality, while ensuring sustainable access to safe water for 45.3% of Uganda's population. Designed for boreholes over 30 meters deep, its sturdy uPVC pipes, threaded collars, and fully dismantlable joints make maintenance easier while standing strong against aggressive groundwater conditions.

Between 2023 and 2024, WaterAid Uganda upgraded 100 boreholes with the Poldaw riser main system—84 in Masindi and 16 in Kabarole—significantly improving the reliability of safe water for thousands of residents. This intervention addressed the persistent corrosion of

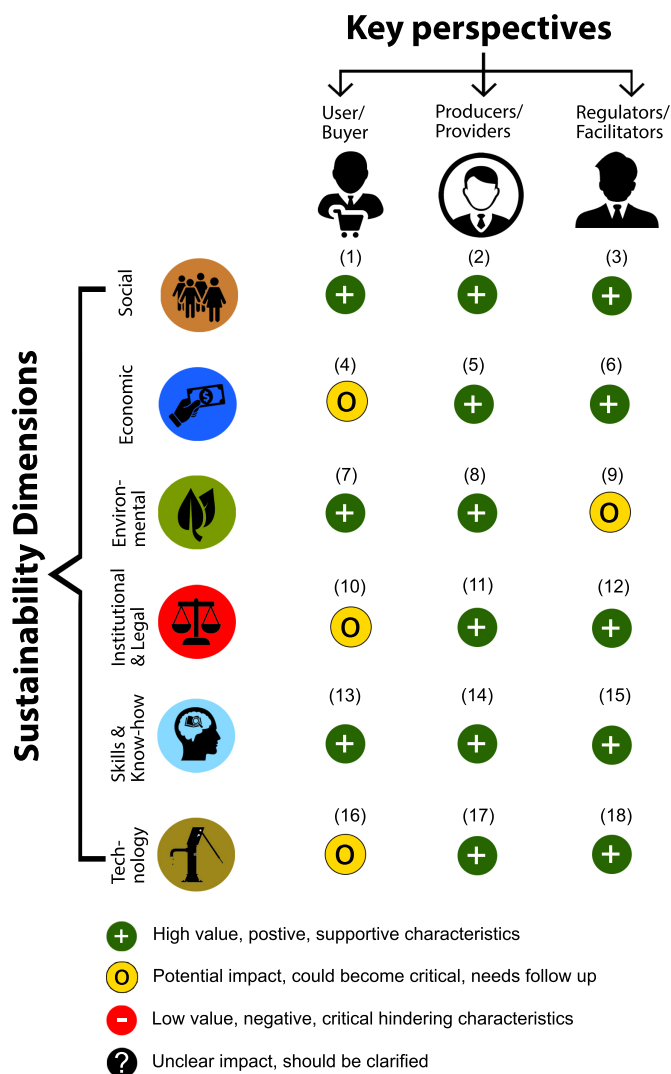
GI-based rising mains, which had been prone to frequent borehole breakdowns and delivered compromised water quality.

To evaluate performance, ATC subjected the technology to multi-dimensional scrutiny using the TAF tool and technical assessment that involved dismantling, physical inspection and analysis of water samples for 40 boreholes from eleven sub-counties of Masindi district.

The assessment results were highly favourable towards the Poldaw riser system, positioning it as the “next-generation” technology to enhance borehole functionality.



Poldaw TAF assessment exercise in Masindi



Assessment results for Poldaw Riser main technology

Snapshot of Poldaw assessment results

- ▶ 14 indicators scored green
- ▶ 04 indicators scored yellow ;
Pointing to moderate challenges like minor installation errors, limited spare parts, and occasional corrosion





By combining innovative engineering with community-focused solutions, the Poldaw Rising Main is setting a new standard for resilient, dependable water services, showing that practical innovation can transform access to clean water for generations to come.

Abrasion of pipes: The poldaw riser system was largely installed in uncased, semi-cased and in some cases non-vertical wells with aggressive ground water chemistry. As such, there were cases of wear and tear of suction/cylinder pipes due to abrasion resulting from prolonged mechanical friction during pumping.

Social and institutional gaps: Some water user committees were inactive, and hygiene around water points needed improvement. The laxity was attributed to the fact that boreholes no longer breakdown as they used to prior. Water users see no need to burden themselves collecting operation and maintenance fees.

Recommendation:

- i) ATC recommends nationwide scale-up of the poldaw riser technology in effort to enhance sustainability, reliability and affordability of point water sources.
- ii) Ministry of Water and Environment should establish national standards for uPVC riser pipe systems. These standards would cover technical specifications, installation protocols, maintenance practices, and a certified spare parts supply chain.

SV36 Impressses in Lab: *Nears Readiness for Community Use*

In the ongoing drive to support innovative water-safety solutions, ATC profiled SV36—an emerging liquid disinfectant designed to tackle microbial contamination in drinking water.

The technology underwent comprehensive laboratory evaluation.

It was tested in ATC Lab, the National Water and Sewerage Corporation, and the National Water Quality Reference Laboratory under the Ministry of Water and Environment.

Strong Microbial Removal Performance

Across multiple lab tests, SV36 excelled in microbial removal, consistently meeting Uganda's potable water standards.

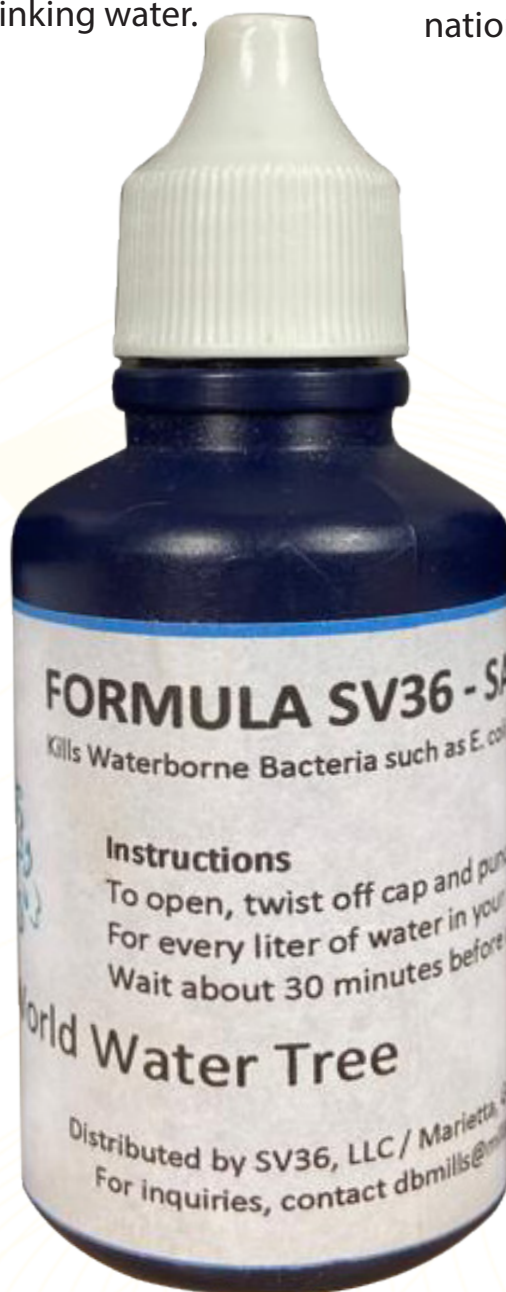
- E. coli counts in raw water samples—ranging from 30 to 95 CFU/100 mL—were reduced to zero after treatment.

- Total Coliform levels were also fully eliminated, even in samples with high initial contamination.

These results confirm that the recommended dosage of two drops per litre is effective in achieving complete microbial inactivation.

However, the solution was attributed to increase in turbidity which was observed in treated water samples.

In some cases turbidity increased from 3.7 NTU in raw water to over 20 NTU in treated samples—far above the national limit of 5 NTU. The other physio-chemical parameters remained within acceptable drinking water standards.



Recommendations

To advance SV36 toward community use, ATC recommends that the promoter:

- Refines the formulation to reduce colour and particulate components that contribute to turbidity.**
- Introduce simple post-treatment filtration, such as sand or activated carbon, to improve clarity where feasible.**
- Conduct extended field trials in households and small community systems to evaluate user experience and acceptability.**