# TOKENTAP FOR HAND PUMPS (GOAL UGANDA & PRACTICA FOUNDATION)

## BACKGROUND

Over fifty thousand (50,000) hand pumps are installed in Uganda, mostly in rural areas. Water supply using hand-pumps is therefore the most common source of water for the majority of Uganda's 45 million people. **It is estimated that one-third of all installed hand-pumps – each of which would be relied upon by 250-500 people – are non-functional at any given time (RWSN, 2009; Baumann, 2009). Additionally, the price of installation is high, with each pump costing between 6,000 and 8,000 USD.** The non-availability of funds for repair is the primary reason for pumps remaining out of use for longer periods of time.

Given the considerable investment in hand pump construction, combined with the ambition of SDG 6 (Clean Water and Sanitation for all), the reliable and resilient functioning of these hand pumps challenge to be overcome. The TokenTap offers a solution by facilitating collection of payment for access to hand-pumps, which its then used for their maintenance.



*Credits: GOAL*

## Stage of innovation

- Ideation and piloting
- Validation ✓
- Scaling

## WHAT IS THE INNOVATION ABOUT?

GOAL Uganda and Practica Foundation started a partnership in 2022 to develop a coin-operated prepayment mechanism, the TokenTap.

The TokenTap is a low-cost, low-tech hand-pump innovation that does not require power or a phone network. Water users buy a plastic token at a local kiosk to dispense a fixed volume of 23 litres of water (one jerrycan). The TokenTap enables currently installed hand-pumps to obtain the income needed for local entrepreneurs and public utility service provers to maintain the pumps and deliver a sustainable source of safe drinking water for the community. This aligns with the Government of Uganda's change in policy from community-based maintenance to public/private utility services providers. In contrast to digital pre-payment technologies, TokenTap succeeds in reducing procurement and operational costs.

GOAL installed a prototype in Bugiri, Uganda. This initial pilot managed to prove the concept of token-based mechanical pre-payment for handpumps and got positive feedback from the water users, the first indication of a promising technology.
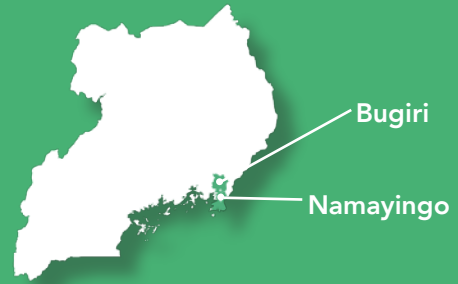
## IMPACT

GOAL's initial pilot of three electronic handpump pre-payment meters has been running for four years now, including the TokenTap developed with Practica. Despite the need for subsidized operational costs due to the fragile internal components, the communities have continually expressed their satisfaction with the method of water collection.

The ability of the TokenTap to generate revenue in support of the hand-pumps maintenance enables families to have continued access to safe and clean water and has the potential to significantly improve the health and well-being of individuals, families and communities.

## POTENTIAL TO SCALE

An estimated 184 million people rely on hand-pumps for access to domestic water. To date, almost 1 million hand pumps have been installed across sub-Saharan Africa, with 60,000 new pumps being installed each year. If only 1% of the installed handpumps were fitted with a TokenTap system handpump adaptor, the total market size would be 10,000 adaptors per year, improving the water security of up to 2 million people.

Across the globe, prepayment for water using tokens is becoming more widely accepted, especially in urban and peri-urban locations. The attraction of TokenTap lies in its simplistic design. Whereas existing devices employing digital prepayment technologies tend to be more expensive – on account of procurement costs – and less durable in rural settings – on account of internal electronics needing power – TokenTap has avoided these issues, reducing costs and increasing durability. Additionally, the guaranteed revenue that derives from pre-payment as well as the demonstrable success of the product has been attractive to local entrepreneurs and potential service providers.

Bugiri

Namayingo

This innovation will be developed over time. Initially, the TokenTap prepaid meter will be piloted in GOAL's WASH operational districts of **Bugiri and Namayingo in Southeastern Uganda.**

## NEXT STEPS

In a previous innovation supported by the Innovation Fund, TokenTap's first prototype was created and evaluated evaluated in the field. The feedback is now being used to enhance the current design and create a more reasonably priced, long-lasting, user-friendly and low-maintenance product.

In this phase, Practica will build up to five prototypes and test them in five different locations in Uganda to analyse the impact of different contexts on the functionality and effectiveness of the innovation. While the next-generation device is under development by Practica, GOAL will collaborate with relevant stakeholders to refine the business model for TokenTap to ensure that the product can be mass-produced and that operations can be scaled up.

# PROGRAMME
# INNOVATION LAB

**Innovating to Overcome Humanitarian Crisis**

The GOAL Programme Innovation Lab is a dynamic and collaborative unit established by GOAL to foster innovation within GOAL's programmes and to promote this work both internally and externally with the wider development and humanitarian community.

To get involved or find ways to support our innovations, please visit
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The GOAL Humanitarian Innovation Fund is designed as a dynamic collaborative process through which strategic partners can engage and provide support to foster innovations which have the potential to enable marginalised populations to overcome humanitarian crisis.

The Innovation Fund is a vehicle for strategic partners who are passionate about how innovation can be applied to overcome humanitarian crisis to support efforts to move communities from Crisis to Resilience. Partners from across the full spectrum of society are invited to engage, including from the those from the private sector, philanthropy, civil society, academic institutions and government bodies.

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