



# Pre-Payment for Handpumps – A Potential Solution for Rural Water Supplies

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**GOAL** envisions a world beyond humanitarian crises where poverty no longer exists, where vulnerable communities exposed to shocks and stresses are resilient, where barriers to well-being are removed and where everyone has equal rights and opportunities.



# KEY FINDINGS

from systems analysis 2014

- Poor functionality **not** the result of
  - Supply chain issues
  - Lack of access to skilled mechanics
  - Inability to pay

Rather, key system constraints were found to be:



## 1. Inability of Water User Committees (WUCs) to collect and save user fees

Lack of access to financial services - money kept in box – no accountability – breakdown in trust – collection more difficult and burdensome



## 2. Lack of preventative maintenance

“The pump is working - it is not needed” – rely on reactive maintenance – repairs often taking 3-6 months



## 3. Lack of regulation and enforcement

Payment is more or less voluntary – very few effective approaches for WUCs to ensure tariffs are paid (59% WUCs claim <50% of HHs pay)<sup>1</sup>


# Piloting to Accelerate Learning

Pilots to address constraints:

1. Access to mobile money group savings
2. Service provider '*Insurance model*' for O&M.

Ultimately both approaches

**FAILED**



GOAL

**MOBILE MONEY BANKING**

For

Water User Committees



GOAL

**A Private Sector Approach to the Operation and Maintenance of Boreholes**

# Inability to collect and save money

# WUC Making their Quarterly Payments

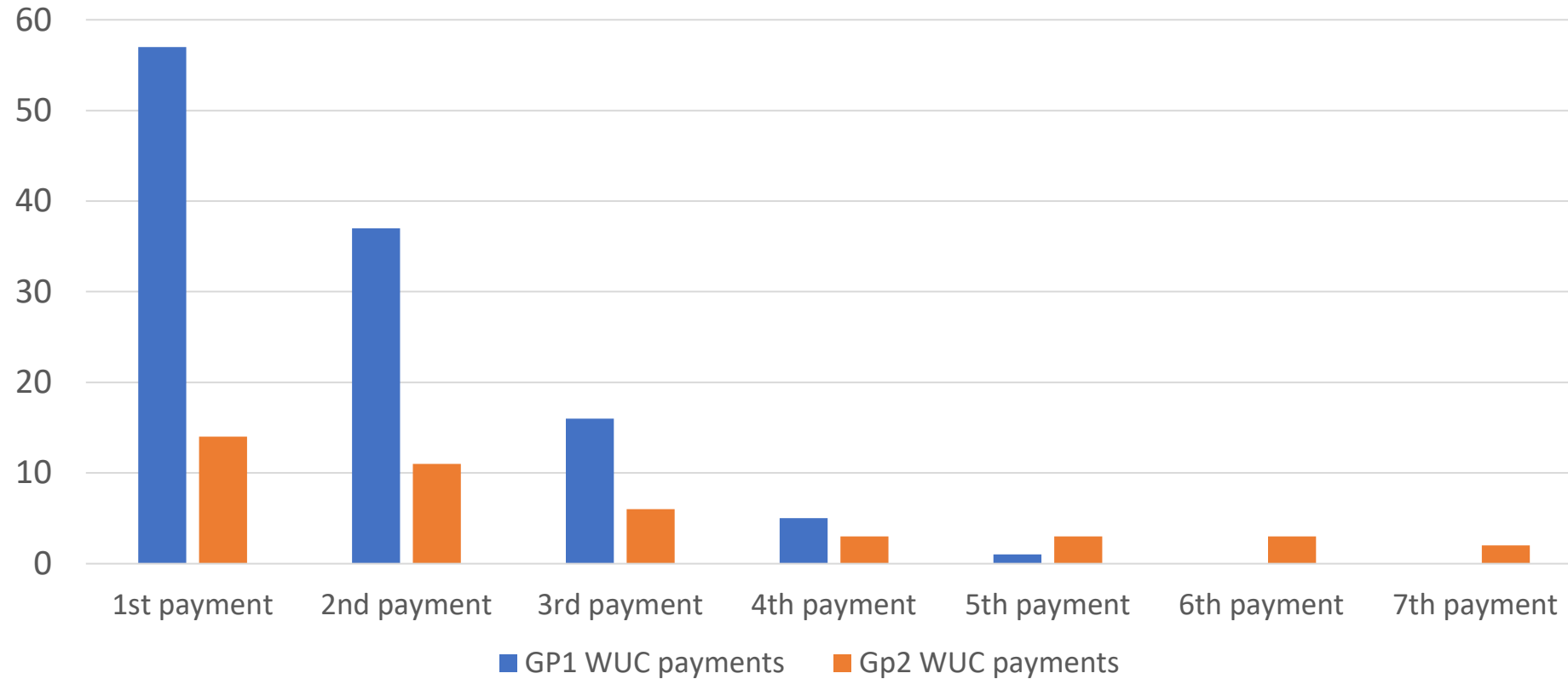




Figure 1. Graph showing number of WUCs making their contracted Quarterly payments

# Adapt and try again.....

- Pre-payment Pilot on three Boreholes
  - Running Dec 2018 – present (≈4 yrs)
  - Internal assessments
  - External evaluation (2020)
  - External evaluation (2021)
-  • 96% prefer pre-payment over previous
- Many said it was cheaper (35%)
  - Helped with managing HH budget
-  • Reliability issues with technology (27%)
- Expensive to replace lost token (13%)



# Impacts of a pre-paid system .....on addressing system constraints



1. Inability of WUCs to collect and save water user fees



2. Lack of preventative maintenance



3. Lack of regulation and enforcement

Area Service  
Provider Model

# Why is there not more interest in pre-payment for hand pumps?

## What did established practitioners tell us?

### 1. Why not shift to 'higher service level' provision (i.e. piped water)?

- Agreed – piped systems make sense in certain contexts.
- However, it will take many decades to replace all handpumps with piped networks.

### 2. Doesn't this add unnecessary complexity to a simple device?

- This complexity is necessary to enable tariff collection and private sector engagement
- Makes regulation and monitoring easier.
- Mechanical options can reduce complexity and increase reliability (e.g. Practica-Foundation Token-Tap)

### 3. Doesn't this increase the cost?

- Yes, mechanical devices are approx. \$800- \$1000 per handpump (mass production will lower cost).
- This is cheap compared to a multiple repairs and the support costs needed for CBM!

# Isn't there potential for exclusion of lower income households?

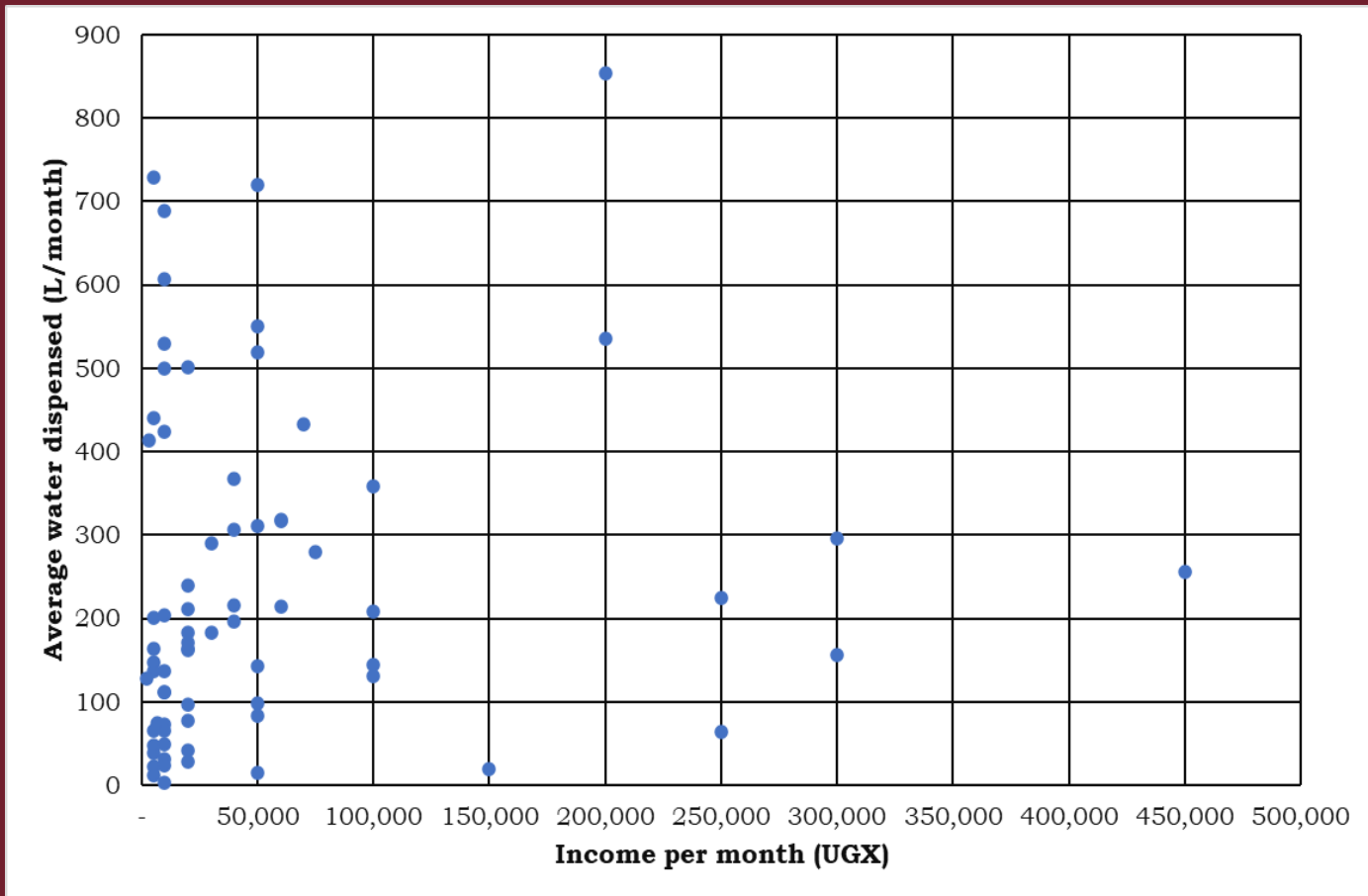


Figure 2. Graph showing volume of water collected per household against reported household monthly income

- Our pilot did not find this (left).
- Need to learn more here – but again the technology has the potential to allow for adjustment based on HH Status
- Other studies have found similar results<sup>1,2</sup>

<sup>1</sup> Kabarole district pay-as-you fetch Research report, IRC 2019

<sup>2</sup> The Limits and Possibilities of Prepaid Water in Urban Africa: Lessons from the Field; C. Heymans, 2014



# In Conclusion

- Demand for pre-payment in piped (pressurised) systems is substantial and widely accepted, with reports of payback periods of under 2 yrs.<sup>1</sup>
- Given the >1 million handpumps across Africa<sup>2</sup> there is a huge opportunity to benefit from pre-payment solutions.
- GOAL is currently working with Practica Foundation to convert their mechanical pre-payment system for use on handpumps.
- Field trials will begin late 2022 with full pilot starting in 2023, with funding from Irish Aid, and is seeking other partners.



<sup>1</sup>Pre-paid water meters: Can the technology fund itself and increase access? The Water Blog, World Bank, 2021

<sup>2</sup>Handpump Standardisation across Sub Saharan Africa – RWSN 2015