Predictors, Patterns & Implications of Waterpoint Financial Performance in Rural Kenya
Water service delivery costs in rural sub-Saharan Africa likely exceed $1b per year

Access to improved water sources in rural sub-Saharan Africa 2015\(^1\)

- **Handpumps**: $485m\(^2\)
- **Standpipes**: $490m\(^3\)
- **Piped connections**: $205m\(^3\)

Estimated annual O&M costs

![Bar chart showing access to improved water sources in rural sub-Saharan Africa as of 2015. The chart indicates that most access is through other improved sources, with a smaller percentage having piped connections on premises.](chart.png)
Community-based financing of O&M widely promoted in policies & assumed in finance plans

= rural water policy or financing plan assuming some or all O&M costs covered by household contributions⁴
Mismatch between policy and reality: Majority of rural households do not pay for water services

% of households paying where revenue collection system in place

% of waterpoints with revenue collection system in place
Evidence from waterpoint financial records in Kwale, Kenya
• Financial records located at 100 communities
  - 270+ waterpoint years
  - 43,020 monthly contributions
• Integrated with household survey (n=3,000+) & waterpoint census data
• Assessment of payment prevalence, patterns, predictors & implications
Around one in four households in Kwale do not meet monthly payment obligations.

Collective payment rate by year
(Monthly payments, 1990-2013)
Payment levels predicted by waterpoint location, pH, taste, rainfall season and group size

**Geographic**
- Distance: HHs to WP
- Distance: WP to WP
- Settlement type

**Environmental**
- pH
- Electrical conductivity
- Taste
- Rainfall season
- Alternative sources

**Operational**
- Attendant
- Lock
- Community mechanic
- System age

**Institutional**
- Participation

**Financial**
- Tariff
- Bank account

**Socio-economic**
- Productive uses
- Wealth
- Group size
Monthly payment rates remain relatively stable above 50-60%, but are prone to collapse below this point.

Month-to-month change in collective payment rates

Collective payment rate

- Negative change
- Positive or no change
Pay-as-you-fetch: has higher revenue, lower downtime but associated with unimproved water use.
Summary

- Non-payment and late payment prevalent
- Payment behaviours shaped by environmental & social factors
- Revenue collection prone to collapse when rates drop below 60%
- Pay-as-you-fetch generates more revenue & has shorter downtime but appears to deter some users
Footnotes

2. Based on an estimate of 184 million handpump users (Macarthur, 2014), and mid-points of annual O&M cost requirement of US $2-3 per person (WASHCost 2011, adjusted to 2014 values).
3. Based on an estimate of 70 million standpipe users and 29 million people with piped connections (calculated from JMP country files) and mid-points of annual O&M cost requirement of US $2-12 per person (WASHCost 2011, adjusted to 2014 values).
4. Based on information presented in Banerjee & Morella (2011) & GLAAS (2014). Banerjee & Morella (2011) list countries with a rural water cost recovery strategy. GLAAS (2014) lists countries with a “financing plan [which] defines if operating and basic maintenance is to be covered by tariffs or household contributions“.