Business Models for Rural Water Sustainability

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Jacob Katuva, FundiFix, Kenya
1. The FundiFix Model
2. Professional maintenance services in Kenya
3. Water Services Maintenance Trust Fund
The FundiFix model

*Fundi* noun (E. Africa):

Mechanic (by profession), expert in repair and maintenance of machinery. Word origin – Swahili for craftsperson or artisan.
Professional Services

Improved performance with FundiFix model, Kwale County, Kenya, 2012–13
Sustainable Finance

- Performance-based finance
- Mobile payments
- Water Services Maintenance Trust Fund

Mobile payments reduce transaction costs and promote accountability
Smart Monitoring

- Continuous monitoring
- Condition monitoring
- Cloud-based computing
FundiFix – Local entrepreneurs powered by smart data
Repair performance of Kwale Handpump Services Ltd. and community-managed in 2015 (416 failure events for 275 handpumps)

- Kwale Handpump Services Ltd. (n=211) 99%
- Community-managed (n=64) 53%
How much does a professional maintenance service cost?

Handpumps = 100

Customer base = 25,000

Total operating cost = USD28,000

Annual maintenance cost (USD/person) = $1.12

Kwale Handpump Services Ltd.
Annual operating costs (100 handpumps)

- Salaries 43%
- Spare parts 32%
- Information 4%
- Rent & Utilities 5%
- Admin 8%
- Transport 8%
Does scale reduce financial risks?

Project income and expenditure projections

- Annual Income (KES)
- Annual Expenditure (KES)

Current Status; 62 HPs registered

BREAK EVEN POINT - 350

Number of Handpumps signed up

Kenyan Shillings

0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 320 340 360 380 400 420 440 460 480 500

0 500,000 1,000,000 1,500,000 2,000,000 2,500,000 3,000,000 3,500,000 4,000,000 4,500,000 5,000,000

Asset performance by unit cost of water (handpumps, n=153)

Unit cost of water (USD/m3)

- 3% cost >$1/m³
  - <1% water production

- 5% cost 0.5-$1/m³
  - 2% water production

- 11% cost $0.25-0.5/m³
  - 7% water production

- 49% of handpumps cost $0.01-0.25/m³
  - 64% water production

- 32% had no repairs
  - 27% water production
Operational
• 98 repairs to 25 handpumps
• Average repair time <1 day

Financial
• 81% collection efficiency
• 20% cost recovery
• Annual maintenance cost (USD/person) = $1.28
Maintenance services for all rural water infrastructure - Water Audit, Kitui

48 piped water systems for 110,000 users
Community managed
55% functional
Average repair time 3-10 months
High demand for professional maintenance services

Population Served
- < 1,000
- 1,001 - 5,000
- 5,001 - 7,500
- > 7,500

48 piped water systems for 110,000 users
Community managed
55% functional
Average repair time 3-10 months
High demand for professional maintenance services
Business case driven by operational scale (projections for Kitui County)

<table>
<thead>
<tr>
<th>Years</th>
<th>Revenue from users</th>
<th>Total Costs</th>
<th>% shortfall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 0</td>
<td>1,585</td>
<td>14,523</td>
<td>89%</td>
</tr>
<tr>
<td>Phase 1</td>
<td>6,779</td>
<td>46,000</td>
<td>85%</td>
</tr>
<tr>
<td>Phase 2</td>
<td>41,936</td>
<td>127,248</td>
<td>67%</td>
</tr>
<tr>
<td>Phase 3</td>
<td>149,453</td>
<td>261,729</td>
<td>43%</td>
</tr>
</tbody>
</table>

- 40 HPs
  - 20 Piped
  - 60,000 people
- 60 HPs
  - 50 Piped
  - 140,000 people
- 100 HPs
  - 120 Piped
  - 325,000 people

US Dollars

- 0%
- 10%
- 20%
- 30%
- 40%
- 50%
- 60%
- 70%
- 80%
- 90%
- 100%

- 50,000
- 100,000
- 150,000
- 200,000
- 250,000
- 300,000

- 40 HPs
- 60 HPs
- 100 HPs
Why a trust fund?
Rewarding performance with local, sustainable finance

Co-investing in maintenance costs of water infrastructure to ensure reliable supplies for drinking, washing, bathing and laundry needs

- All and sustainable
- Most and reliable
- Some and unreliable

Finance for maintaining water infrastructure, % of total

Population, % of total

User tariffs
Investors
Government
How does the fund work?
Pooling financial risk so no one is left behind

Investors $\rightarrow$ Water Services Maintenance Trust Fund $\rightarrow$ Government

- Performance metrics $\rightarrow$ Results-based finance $\rightarrow$
- $\rightarrow$ Performance metrics $\rightarrow$ Results-based finance $\rightarrow$

Maintenance service providers

- $\rightarrow$ Performance metrics $\rightarrow$ Results-based finance $\rightarrow$
- $\rightarrow$ Performance metrics $\rightarrow$ Results-based finance $\rightarrow$

Water users
Water Services Regulation fails the rural poor without monitoring linking investments with outcomes

23% of Kenya’s population regulated – in areas considered commercially viable

Results-based payment model for rural water services