Analyzing the cost of WASH provision in UNHCR refugee camps

Phase 1:
Dr Christelle Pezon
Kristof Bostoen
Melanie Carrasco

Phase 2:
Dr Ryan Schweitzer
Dr Catarina Fonseca

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SuSana Working Group 8
WASH in Emergencies
Background

Goal:
Cost information planning /management (short, mid term)
Smooth transition/hand over to govn’t (long term)

Phase I (2014)- Detailed pilot study in two camps (Ethiopia and Chad)

Phase II (2015)- Analysis of global UNHCR datasets
Phase I: Pilot Study

Objective:
1. understand the **structure, magnitude** and **drivers**
2. applicability/potential of LCCA in camps

Data sources:

Reported—obtained from UNHCR HQ (WASH Score Cards, accounting database, monitoring reports)

Observed—WP surveys, review of records (4 weeks in field in both camps)
Pilot Study Camps

Selected for size (generally representative)
Varying climate

Kounongou, Chad
21,000 refugees
Pump to gravity system
~40 WPs with multiple taps

Bambasi, Ethiopia
14,000 refugees
Pump to gravity system
~366 public taps
Service Levels

**Above standard.** >=20lpd no fecal coliforms or >=0.5 mg per litre of residual chlorine

**Acceptable.** 15-20lpd no fecal coliforms or >=0.1 mg per litre of residual chlorine

**Problematic.** 10-15 lpd

**Critical.** < 10lpd

Results:

Bombasi (Ethiopia) 21% HH acceptable or above-standard (WQ limiting)

Kounoungou (Chad)- 36% HH acceptable  (WQ not available)

Regionally - 80% to 100% of the population receives only a critical level of service
## Cost categories

<table>
<thead>
<tr>
<th>Type of cost component</th>
<th>Component</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>System related</td>
<td>Capital expenditure (CapEx)</td>
<td>Capital invested in constructing or purchasing fixed assets (e.g., concrete structures, pumps and pipes, boreholes, reservoirs). It also includes one-off software (e.g., community training and consultation, design, procurement).</td>
</tr>
<tr>
<td></td>
<td>Operational expenditure (OpEx)</td>
<td>Operating and minor maintenance expenditure (e.g. labour, fuel, chemicals, spare parts)</td>
</tr>
<tr>
<td></td>
<td>Capital maintenance expenditure (CapManEx)</td>
<td>Capital for asset renewal and replacement consists of occasional and 'lumpy' expenditures to restore system functionality (e.g., replacing pump rods in hand pumps, diesel generator in motorised systems).</td>
</tr>
<tr>
<td>Management related</td>
<td>Expenditure for direct support (ExDS)</td>
<td>Direct support is structured support to camp or settlement office of international agency to organise, operate and report on provision of water service. It includes all expenditures made locally by agency to appoint international staff and hire local staff, plan and operate water facilities, monitor and report to headquarters and funders.</td>
</tr>
<tr>
<td></td>
<td>Expenditure for indirect support (ExIDS)</td>
<td>Indirect support covers expenditures made by international agencies and UNHCR to develop strategies and policies and coordinate humanitarian interventions to provide water services to refugees.</td>
</tr>
</tbody>
</table>
Report population higher than observed
In-line with WASH Cost figures (US$2014/person/yr)

<table>
<thead>
<tr>
<th></th>
<th>Camp Bambasi</th>
<th>Camp Kounoungou</th>
<th>Regular settlements in Africa</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CapEx</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reported</td>
<td>$95</td>
<td>$25</td>
<td>$30–$130</td>
</tr>
<tr>
<td>Observed</td>
<td>$136</td>
<td>$71</td>
<td>$80–$130</td>
</tr>
<tr>
<td><strong>OpEx</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reported</td>
<td>$4</td>
<td>$1.10</td>
<td>$0.50–$5</td>
</tr>
<tr>
<td>Observed</td>
<td>$6</td>
<td>$3.20</td>
<td>$1.70–$3.50</td>
</tr>
<tr>
<td><strong>ExpDS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reported</td>
<td>$4</td>
<td>$1.25</td>
<td>$1–$3</td>
</tr>
<tr>
<td>Observed</td>
<td>$6</td>
<td>$3.60</td>
<td>$4–$6</td>
</tr>
</tbody>
</table>
Phase I: Cost drivers

CapEX: quantity and quality

OpEX: fuel for the piped scheme

<table>
<thead>
<tr>
<th></th>
<th>Bambasi camp</th>
<th>Kounoungou camp</th>
</tr>
</thead>
<tbody>
<tr>
<td>OpEx (US$2014 / m3)</td>
<td>$0.5</td>
<td>$0.21</td>
</tr>
</tbody>
</table>

ExpDS: age of the camps (i.e. Bambasi more recent and benefiting from more financial resources than 10 year old Kounoungou)
General Conclusions

Implications for transition (in the future):
• Bambasi - $12 / person /year
• Kounoungou - $6.80 / person /year

SL and costs
• Kounoungou service is better and cheaper
• Kounoungou doesn’t have a Wquality data

Compared with regular rural settlements in Africa*
• Costs higher but so are services

*WASH Cost data: BKF, Ghana, Uganda, Mozambique
Phase II Challenges for analyzing UNHCR dataset

Linking data sources:

- **UNHCR internal resources:**
  - Global Focus Insight—Results based monitoring system
  - UNHCR Accounting Database

- **Open source:**
  - TWINE (water production, technology)
  - UNHCR statistical yearbook (population)
Phase II Methodology

Link to Results Based Monitoring Framework

- **Unit of analysis:** Population groups defined in RBM
- **Cost Categorization:** linked to outcome indicators

Service Levels = water quantity only

Unit costs are calculated

- Per capita
- Per cubic meter
Next Steps

Refining the analysis methodology and data sources

Building two tools:
1. Estimate costs of emergency water supply provision (excel based)
2. Post emergency estimates by cost category (CapEX, OpEX, ExpDS) which will be an online tool used by UNHCR operations

Knowledge generated can be shared with UNHCR’s partners

Similar Phase I study has been done for sanitation
Visiting address
Bezuidenhoutseweg 2
2594 AV The Hague
The Netherlands

Postal address
P.O. BOX 82327
2508 EH The Hague
The Netherlands

T +31 70 3044000
info@ircwash.org
www.ircwash.org

Questions:

Ryan Schweitzer

r.schweitzer@aguaconsult.co.uk

Supporting water sanitation and hygiene services for life
<table>
<thead>
<tr>
<th>INDICATOR</th>
<th>Quantity (l/c/d)</th>
<th>Quality</th>
<th>Aggregated level of service</th>
<th>Distant (m)</th>
<th>Crowding</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEVEL OF SERVICE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>c / HP-SW</td>
</tr>
<tr>
<td>Above standard</td>
<td>&gt;= 20</td>
<td>FRC &gt;0.5 mg/L and NTU &lt; 5</td>
<td>Quantity and quality indicators are above standards</td>
<td>&lt;= 200</td>
<td>&lt;= 250</td>
</tr>
<tr>
<td>Acceptable</td>
<td>[15 to 20]</td>
<td>0 E. coli cfu</td>
<td>0.5 mg/L &gt;=FRC &gt;=0.1 mg/L and NTU &lt; 5</td>
<td>[251-500]</td>
<td>[101-250]</td>
</tr>
<tr>
<td>Problematic</td>
<td>[10 to 15]</td>
<td>&gt;=1 E. coli cfu</td>
<td>no FCR</td>
<td>&gt; 200</td>
<td></td>
</tr>
<tr>
<td>Critical</td>
<td>&lt; 10</td>
<td>no test</td>
<td>no test</td>
<td>&gt;500</td>
<td>&gt;250</td>
</tr>
</tbody>
</table>