PROFESSIONAL WATER WELL DRILLING IN AFRICA: INCENTIVES AND SUPPORT

Sean Furey, Dr Kerstin Danert - Skat Foundation/Rural Water Supply Network (RWSN)
Jose Gest Canuto - UNICEF
GROUNDWATER DEVELOPMENT

• Dependence on groundwater for domestic supply: 45% globally / 75% in Africa

• Potential of groundwater development for irrigation: additional 20-49% in Africa

• Borehole construction key for achievement of SDG 6 (and beyond)
SUSTAINABILITY IS A CONCERN

DROP OF FUNCTIONALITY OF WATER POINTS BY AGE:

10-27% OF WATER POINTS NON FUNCTIONAL AFTER 1-2 YEARS

<table>
<thead>
<tr>
<th>Country</th>
<th># of Water Points (2 years old)</th>
<th>% Non-Functional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sierra Leone</td>
<td>2,778</td>
<td>10</td>
</tr>
<tr>
<td>Afghanistan</td>
<td>4,134</td>
<td>17</td>
</tr>
<tr>
<td>Liberia</td>
<td>1,160</td>
<td>18</td>
</tr>
<tr>
<td>Uganda</td>
<td>8,660</td>
<td>22</td>
</tr>
<tr>
<td>Tanzania</td>
<td>1,246</td>
<td>27</td>
</tr>
</tbody>
</table>

Source: Banks and Furey 2016
UNDERLYING CAUSES OF FAILURE

UNDERLYING CAUSES OF FAIL
Low yield
Poor water quality
Mechanical failure

PRIMARY REASONS
Corruption
Poor/inappropriate contract management
Lack of knowledge to inform policy and WASH programmes
Insufficient access to external support (NGO, local and national government)
Lack of community understanding
Lack of enforced standards and regulation

SECONDARY REASONS
Lack of access to spare parts
Lack of basic maintenance
too difficult
Vandalism and accidental damage
Low capacity of community management

POOR SITING
Inappropriate design
Low groundwater potential

INAPPROPRIATE MATERIALS
Poor construction of borehole or pump
Groundwater chemistry

LONG TERM TRENDS – CHANGES IN WATER DEMAND, CLIMATE, GROUNDWATER AVAILABILITY AND QUALITY

Lack of clear procedures of supervision and geological input to siting, design and construction of boreholes

Insufficient access to external support (NGO, local and national government)
Lack of community understanding
Lack of enforced standards and regulation

Corruption
Poor/inappropriate contract management
Lack of knowledge to inform policy and WASH programmes

CONSTRUCTION QUALITY IS NOT ALWAYS CONSISTENT
FIGURES BELOW: ONE-YEAR OLD INFRASTRUCTURE.
COUNTRY & PROGRAMME - ANONYMOUS
THERE MAY BE WATER QUALITY PROBLEMS

Including

- pH
- Iron and Manganese
- Turbidity
- Salinity
- Fluoride
- Arsenic
- Nitrogen species (nitrate, nitrite and ammonium)
- Bacteria
Planning, budgeting and design

Siting, drilling, supervision and monitoring

Reports (and payments?)

Call for tender

Tender allocation

Planning, budgeting and design

BURKINA FASO DRILLING CALENDAR

Rainy season: no access to boreholes nor drilling sites
**CAUSES OF FAILURE (UGANDA PILOT STUDY)**

A traffic light scorecard approach indicating the status of different facets of water point implementation, BONSOR ET AL (2015)
PROFESSIONALISM

Professionalism is the skill, good judgement and behaviour expected from a person or an organisation who can undertake a job well.
RAISING PROFESSIONALISM: WHAT

http://www.rural-water-supply.net/en/resources-top/sort/year-desc/filter/2_9
RAISING PROFESSIONALISM: HOW

http://www.rural-water-supply.net/en/resources/details/775

Source: UNICEF/Skat Foundation (2016)
AREAS OF ENGAGEMENT (I)

Promote initiatives to:

- Improve national (or state) policies, regulation, standards and procedures of borehole drilling
- Clarify roles and responsibilities
AREAS OF ENGAGEMENT (II)

Promote initiatives to:

- Ensure drilling records are collected, quality-assured and collated
- Make this readily available to inform future borehole siting, design, and groundwater management
Promote initiatives to:

- Improve the design, implementation (including supervision) & monitoring of specific projects
- Ensure that documentation of the process and results is readily available
AREAS OF ENGAGEMENT (IV)

Promote initiatives to:

- Raise the skills and knowledge of groundwater development practitioners
- Encourage the availability of suitable equipment in the country
AREAS OF ENGAGEMENT (V)

Promote initiatives to:

- Foster dialogue between government agencies, drilling contractors, consultants, NGOs, development partners and civil society
- Raise awareness of decision-makers and the public about groundwater potential management
AREAS OF ENGAGEMENT (VI)

Investment

Promote initiatives to:
- Invest adequate financial resources to improve and sustain professional groundwater development
# ANIMATED FILMS

**Siting:**
- The importance of good borehole siting - [https://vimeo.com/130738245](https://vimeo.com/130738245)
- Les forages: l’importance de bien choisir le site d’implantation - [https://vimeo.com/126795160](https://vimeo.com/126795160)

**Supervision:**
- A borehole that lasts for a lifetime [https://vimeo.com/130747716](https://vimeo.com/130747716)
- Un forage qui dure toute une vie - [https://vimeo.com/128478995](https://vimeo.com/128478995)

**Construction quality:**
- Why are some boreholes better than others? [https://vimeo.com/185292448](https://vimeo.com/185292448)
- Pourquoi certains forages sont-ils meilleurs que d’autres? - [https://vimeo.com/185289895](https://vimeo.com/185289895)

**Procurement and contract management:**
- Four steps to better drilling contracts - [https://vimeo.com/185287147](https://vimeo.com/185287147)
- Quatre étapes pour de meilleurs contrats de forage [https://vimeo.com/171751215](https://vimeo.com/171751215)
REFERENCES


DOWNLOAD GUIDANCE NOTE FROM:

HTTP://WWW.RURAL-WATER-SUPPLY.NET/EN/RESOURCES/DETAILS/775

JOIN RWSN: HTTP://DGROUPS.ORG/RWSN

– THANK YOU –

Kerstin Danert kerstin.danert@skat.ch
Jose Gesti Canuto jgesticanuto@unicef.org
Sean Furey sean.furey@skat.ch