Supporting self-supply

An innovative approach to reach SDG6.1 in rural Africa at $25/person

UN 2023 WATER CONFERENCE
NEW YORK 22–24 MARCH 2023

Henk Holtslag
MetaMeta / SMART Centre Group
henkholtslag49@gmail.com

The SMART Centre Group

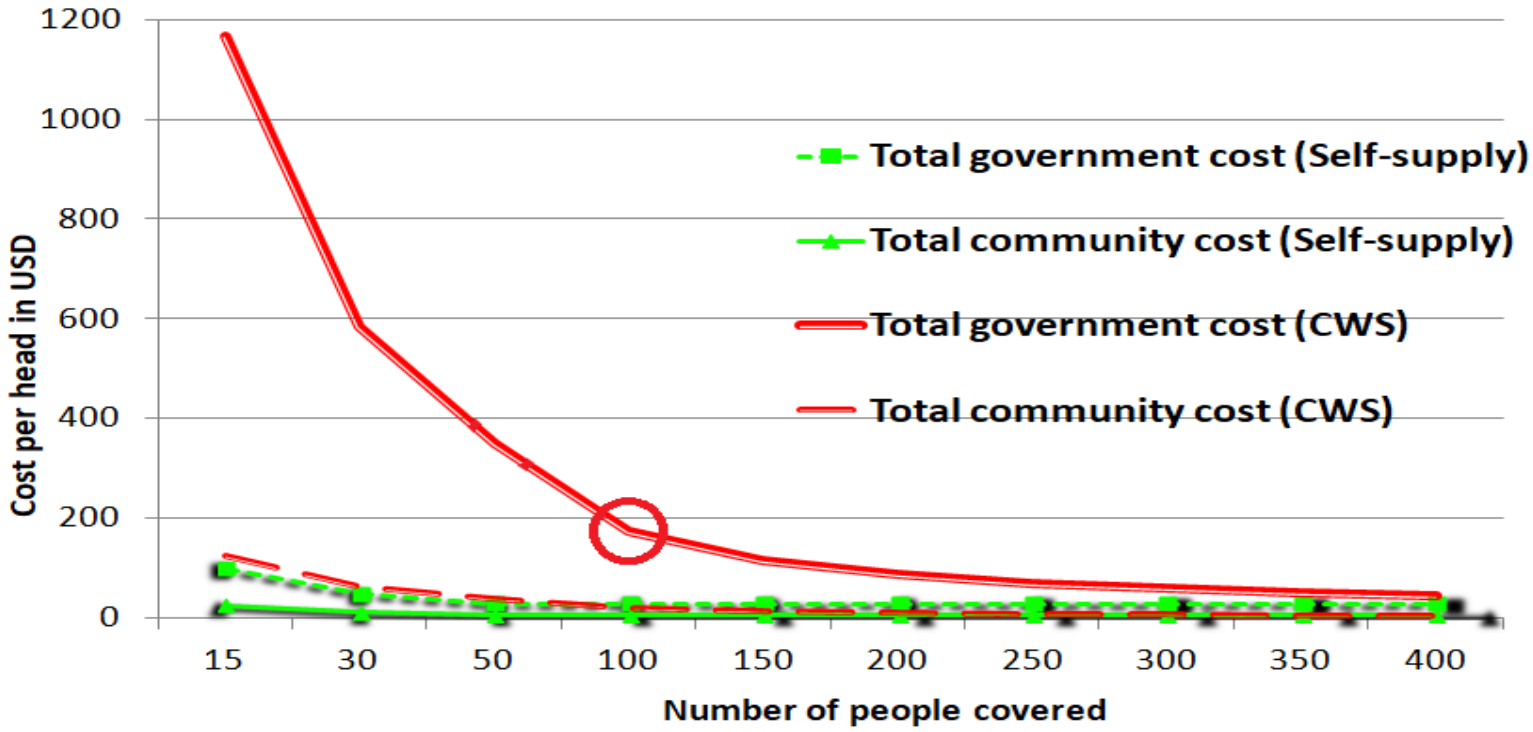
Training the local private sector in Simple, Market based, Affordable and Repairable Technologies

300 mln. people in rural Sub-Saharan Africa lack “basic service”

An improved water source within 30-minute round trip (WHO, 2022)

Most live in areas with less than 50 people/square km.

Impossible to serve them with piped systems or conventional communal wells



Book Self-supply. Sally Sutton. WSP/UNICEF/SKAT 2015

The common option for rural water supply; a machine drilled borehole & imported pump

The investment cost (CapEx) is subsidized by Governments or NGOs

Cost $2000 - $8000. For 200 users, average cost/person **$25**

The cost / person of the same technology for 50 users would be > **$100**

A solution for small communities?
Hand drilled boreholes & locally produced pumps

- A hand drilled borehole & rope pump **$1000.** 40 people. Cost / person **$25**
- Millions hand drilled wells in Asia, >200.000 in Africa (20 to 100 m deep)
- Low-cost pumps? > treadle pumps of $80-$180 (400.000 in Africa), rope pumps
- of $80-$120, (130.000 installed), EMAS pump of $60 (80.000 installed)
- Coming up; low-cost Solar pumps, $150 - $300

The challenge! Reach SDG6.1 in rural SSA

Provide 300 mln. people with “basic service”

Proposition

To provide “basic service” for these 300 million people
it is more cost-effective to subsidize self-supply, so family wells,
than to subsidize communal supply.

Write “**agree**” or “**Don’t agree**” in Chat box

Self-supply can scale with the SMART approach

Simple, Market-based, Affordable, Repairable Technologies

Focus on 3 aspects:

1. **Innovation;** low-cost technologies, that can be produced locally.
2. **Training;** coaching the private sector, for quality; Simple is not easy!!!
3. **Support Self-supply;** targeted subsidies. Those without “basic service”.

Many technologies fit for self-supply

- **Wells**: Upgrading existing wells, drill new wells — Cost $10 - $40/m.
- **Pumps**: EMAS, Rope pumps, Treadle pumps, Solar pumps. — Cost $60 - $300
- **Storage**: Underground tanks, Tube recharge, Deep Bed Farming — Cost $0.1- $20/$m^3$
- **Treatment:** Household Water Filters — 30 - 50 Ltr./day — Cost $20 - $40









Examples supported self-supply

Zambia

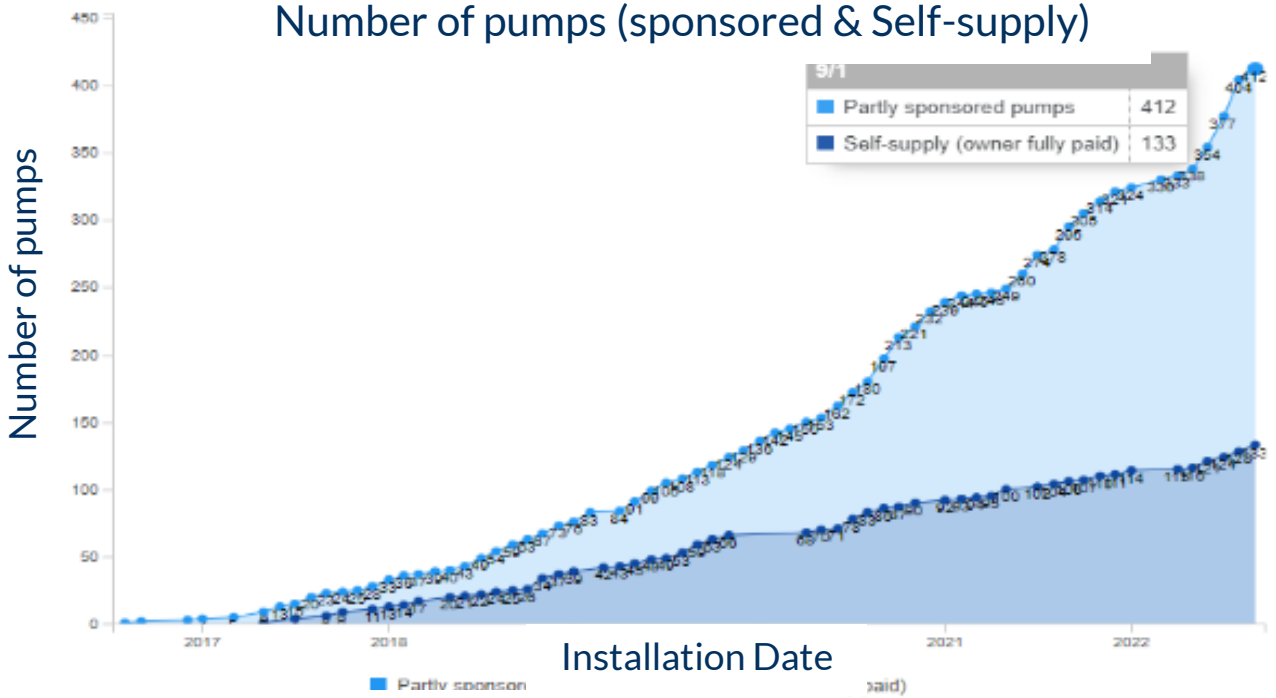
- 465 subsidized wells. Cost $1000 , installed at 1 family
- Condition subsidy; generate income!

Results

- 1 well serves 40 people, basic service
- >92% of pumps are functioning!
- Subsidized farm wells created demand for self-supply. 130 wells 100% paid

Tanzania

- >15.000 rope pumps, 60% self-supply



mWater Dashboard, Jacana SMART Centre (2022)

Supporting self-supply farm wells. 5 SDGs for the price of 1, SDG6.1

SDG 6.1 . Water. Family wells serve 40 people

SDG 1 & 2. Food & income. Farm well = food & income

In Nicaragua 50.000 rope pumps for farmers increase incomes $225/year so >$100 mln. in 20 years. Result of $2 mln. Aid

SDG 5. Gender. Well near premises save time for women, more safety

SDG13. Employment. Drilling, welding, irrigation = work

Concerns self-supply

1. Water quality of shallow wells
2. Millions of wells. Groundwater depletion?

Solutions

1. A $25 household water filter
2. - Hand pumps do not deplete groundwater
   - Many small wells better than few large wells
   - Combine self supply with water harvesting like Deep Bed Farming

Conclusions

1. Supporting self-supply/farm wells = a strong tool to reach SDGs for water & food
2. The cost to reach SDG6.1 with this approach is **$25 /person**
3. That is 2 to 6 times less than the conventional approach, (WHO, 2022)

Recommendations

1. Reach SDG6.1 in SSA needs transformation from;
    - Imported technologies - to also locally produced technologies
    - Water for domestic use only - to also water for productive use
    - Subsidizing communal wells - to also subsidize household/ farm wells

1. Reach SDG6.1 in SSA?; use examples from Zambia, Tanzania,..
2. Create **rural development hubs,** knowledge, training capacity
3. WASH and Agri sector should cooperate to reach SDGs

Water for 300 million people. What is the cost and who pays?

Cost; Reach 300 mln. @ $25/cap = $7.5 billion

Who pays?

- Outcome payers. Those who want to reach SDG6.1, to leave no one behind. But also those interested in poverty reduction, food security, gender, employment, climate adaptation
- Carbon credit funds.
- Funds for climate resilience,..

Interested ?

Contact us info@smartcentregroup.com

SMART Centres in 10 countries

MetaMeta / SMART Centre Group

www.smartcentregroup.com

SMART Centre Zambia

www.smartcentrezambia.com

The SMART Centre Group

Training the local private sector in Simple, Market based, Affordable and Repairable Technologies

References

- Assessment of the Simple, Market-based, Affordable and Repairable Technologies (SMART) approach for Water and Sanitation, IRC WASH, 2022 (link)
- RWSN Field Note: History and status of the rope pump in Nicaragua (link)
- Book: Self-supply: filling the gaps in public water supply provision, S.Sutton, J.Butterworth (link)

Papers:

- Regarding Groundwater and Drinking Water Access through A Human Rights Lens: Self-Supply as A Norm, Jenny Gronwall, Kerstin Danert (link)
- Monitoring Groundwater Use as a Domestic Water Source by Urban Households: Analysis of Data from Lagos State, Nigeria and Sub-Saharan Africa with Implications for Policy and Practice, Kerstin Danert, Adrian Healy (link)
- Groundwater, Self-Supply and Poor Urban Dwellers: A Review with Case Studies; IIED: London, UK, 2010. Grönwall, J.; Mulenga, M.; McGranahan (link)