Reach SDG6.1 in rural Africa? Support self-supply!

Examples that basic service is possible at $25 per person

RWSN webinar Self-supply

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The SMART Centre Group

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

Challenges in rural sub-Saharan Africa

- 300 million lack “safely managed” (piped systems) or “basic service” (SDG6.1 indicator; Improved source at <30 min from home)

- >25% hand pumps broken, lack of funds

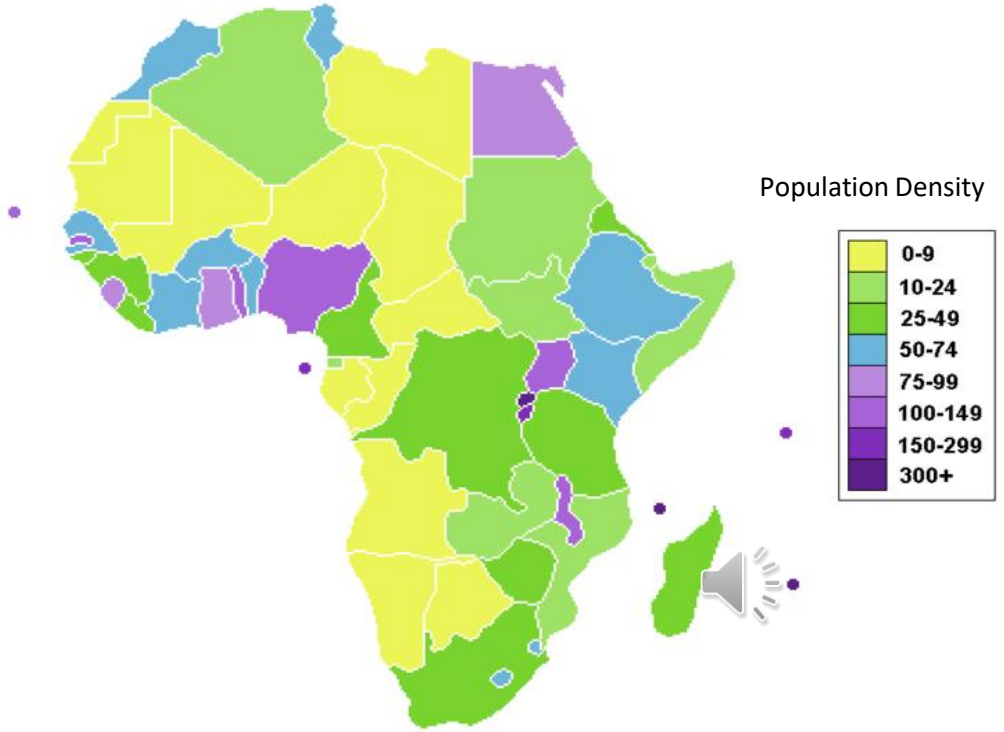
- Food security, poverty, lack of jobs,….

Investment cost to serve 300 million people

- **Safely managed,** with piped systems >$150/person 300 x $150 = **$45 Billion**
- **Basic service,** with kiosks, imported pumps serve 250 people cost on average $25/person. In low population density areas like Zambia there are 24 persons/km2 so cost = >$50/person 300 x $50 = **$16 Billion**
- **Basic service 2,** with supported self-supply cost $25/person 300 x $25 = **$8 Billion**

Conditions are

- In case of wells, 1 well is shared with 5-10 families
- In case of storage tanks, > 200 mm rain/year



Examples supported self-supply

Zambia

600 subsidized wells; condition = income. Results:

- 1 well ($1000) serves 40 people, so $25/person
- **>90% pumps function!** (IRC evaluation, 2022)
- Demand creation. 300 families paid themselves

Tanzania

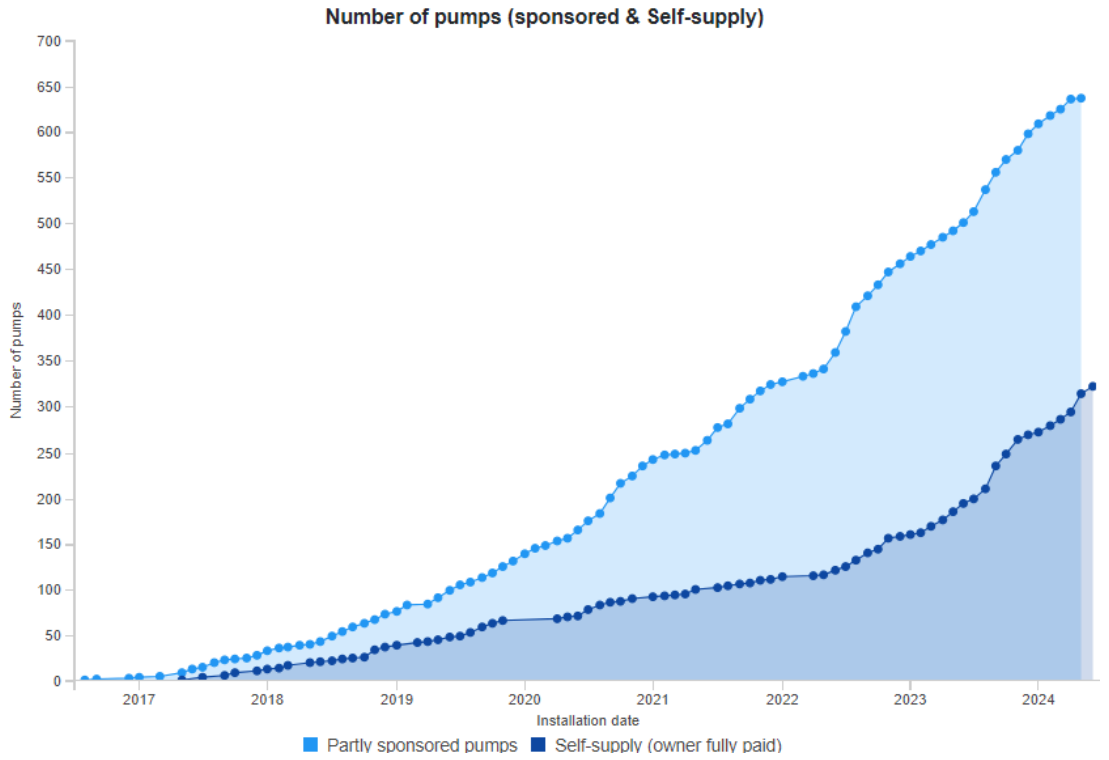
- 700 subsidized wells/ pumps
- Now >15.000 rope pumps, 80% self-supply

Sierra Leone, Gambia

- > 5000 EMAS wells for small communities

Nicaragua

- 50.000 rope pumps on farms, profit $225/pump/yr.
- $100 million increased incomes in 20 years
  Started with $2 million aid money for training



mWater Dashboard, Jacana SMART Centre (2024)

Self–supply possible with locally produced SMARTechs

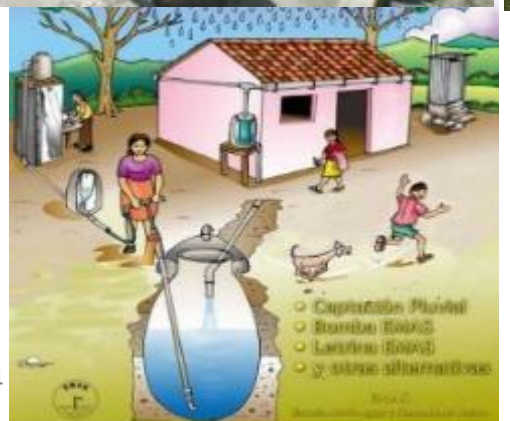
Simple, Market Based, Affordable, Repairable Technologies

- **Tube wells** (25 mtr. deep, with EMAS, SHIPO or Rotary drill) **$250 - $1000**
- **Hand, pedal pumps** (EMAS, Rope, Canzee, Moneymaker,...) **$40 - $200**
- **Solar pumps** (to 25 mtr. deep, 1 -10 cubic mtr./day) **$200 - $300**
- **Storage tanks,** where drilling is not an option (7000 litre) **$150 - $200**
- **Household water filters** (with self-supply, always use treatment) **$20 - $40**







Some numbers

- Hand drilled tube wells >**100.000** in 20+ countries

  80% water supply Lagos = tube wells made with rotary jetting (Danert. 2014)
- Pedal pumps (Money maker) >**350.000** in 16+ countries
- Hand pumps, locally produced. Rope, EMAS, Canzee, Mark5. >**150.000** in 10+ countries
- Water filters, locally produced. Ethiopia, Malawi, Uganda, .. >**800.000** in 6+ countries

Key for success

- **Market-based** Attractive + effective product, willingness to pay
- **Affordable & Repairable** Local production = low cost, local skills + local spare parts
- **Ownership** 1 family owner instead of a community
- **Profit** Generate income so there is money for maintenance + repairs
- **Training** Long term coaching to guarantee quality

Lesson is **“Simple is not easy”.** Technical, business & social aspects




Proposition

With >200 mm rain/year and where manual drilling is possible
it is more sustainable to make 5 small tube wells of $1000/well that each serve 50 people than 1 borehole of $6000 that serve 250 people

Concerns Self-supply

Water quality

Is water safe? Who is going to control it?

Solution? Point of use treatment Chlorine, boiling or a filter

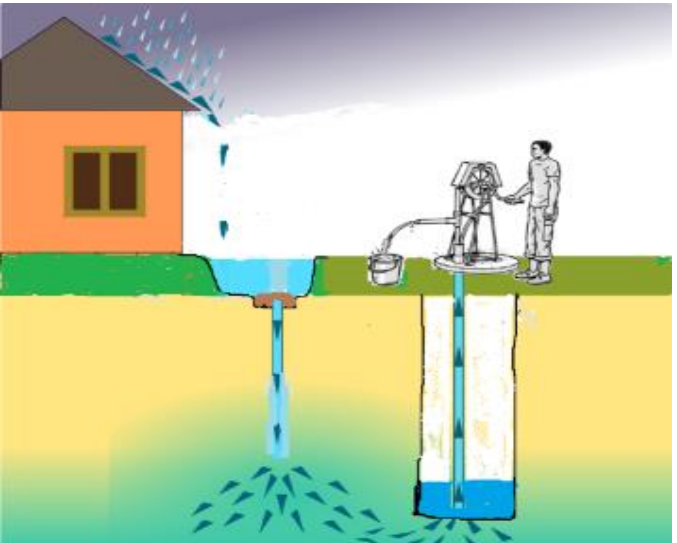
Depletion of Groundwater

What if millions of farmers drill wells?

Solutions? Infiltrate all rain water, recharge ground water

Tube recharge, 100 cubic mtr/yr. cost $20

Deep Bed Farming



Effect this way of supported self-supply

- SDG6.1 with “basic service” at 25$ /person in areas with >200mm rain/year
- Less problems with pump maintenance
- Impact on SDGs for Poverty, Food, Gender, Work & Climate

Suggestions. Shift from;

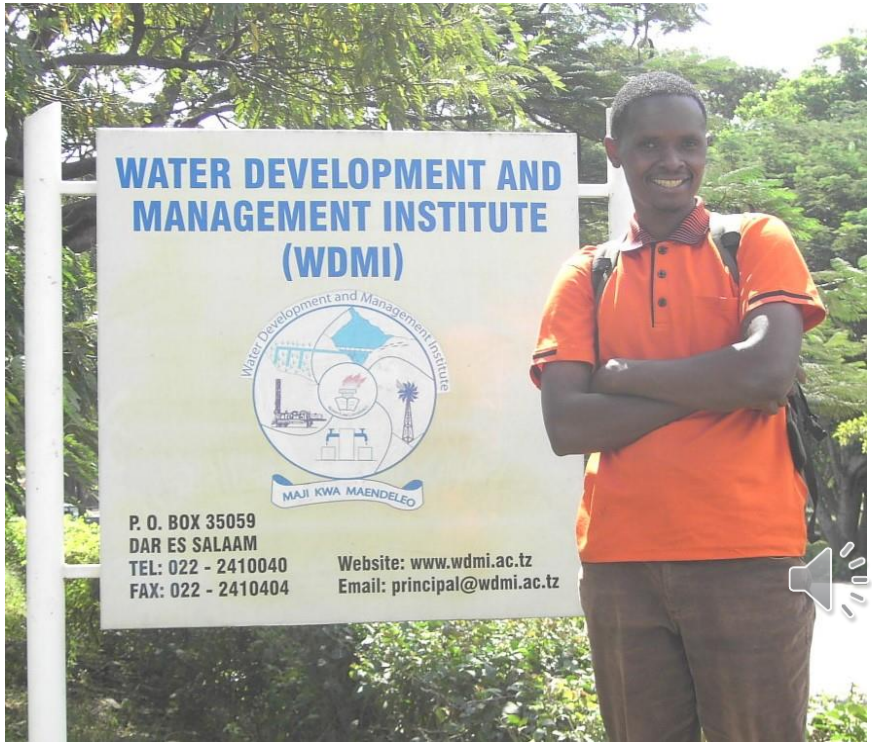
1. **imported technologies** to also **local production**
2. **few wells,** large groups to also **more wells**, small groups
3. **community managed** to also **family managed**
4. **domestic use** to also water for **productive use**

Important to scale; Training..

Effect training. SMART Centres

Mr. Mzumala. Malawi
In 2010 a well digger with a bike
Now a company with a car & 3 drill teams

Mr. Kaduma. Tanzania.
Trained in 2005.
Drilled over 3000 wells



Scale self-supply in a sustainable way?

1. Create knowledge centres in each region to show & train in the most cost-effective solutions for each situation
2. Large scale south-south knowledge exchange

Info on SMART approach

www.smartcentregroup.com

Info on Deep Bed Farming

www.tiyeni.org

Thanks for your attention