

Supported self-supply

An innovative approach to finance SDG6.1 in rural areas with impact on SDG's on Poverty, Food, Gender, Work & Climate

Reinier Veldman and Henk Holtslag

SMART Centre Group and MetaMeta



The
SMART
Centre
Group

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



META
META

www.metameta.nl
www.smartcentregroup.com

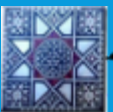
METAMETA

- Improve livelihoods in the Global South through Innovation, research, technical assistance, capacity building,...
- Joined GOPA /AFC Consulting Group in 2024.
- Teams in Netherlands, Ethiopia, Kenya, Turkey, Yemen, Nepal. 40+ staff.
- Host of the SMART Centre Group



GROUNDWATER; KEY FOR RURAL DEVELOPMENT

- For domestic & productive use
- 90% of farmers in the global north had wells!
- Farmers in the global south can only develop if they have water at premises, in general a well
- Enormous potential of untapped groundwater in Sub-Saharan Africa
- Essential to adapt to climate change



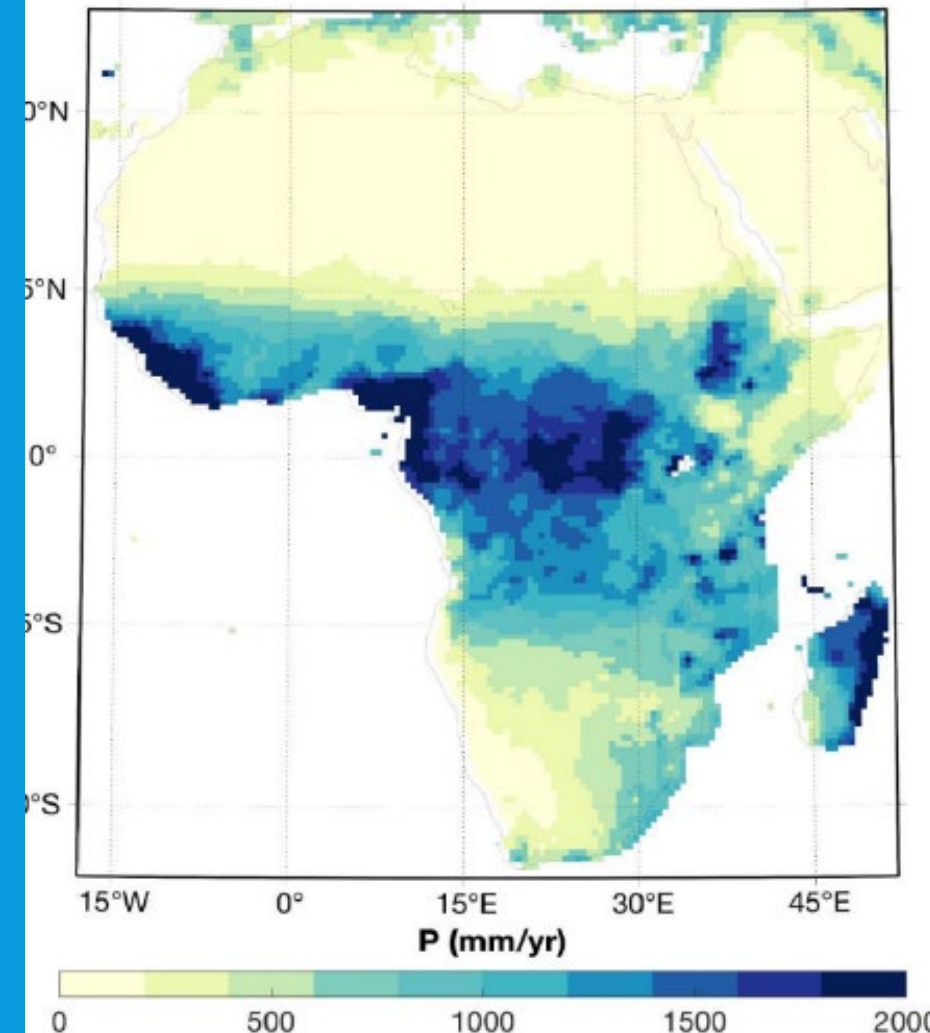
ADAPT TO CLIMATE CHANGE?.... STORE WATER!

The cheapest option in most areas.... Storing in the ground

- 80% of African farmers have plots of 0.5 - 2 Ha
- Many areas > 500 mm rain / yr = irrigation potential

Condition ?...

- Affordable technologies
- Water balance. What is pumped out should be recharged
→ essential within landscape restoration





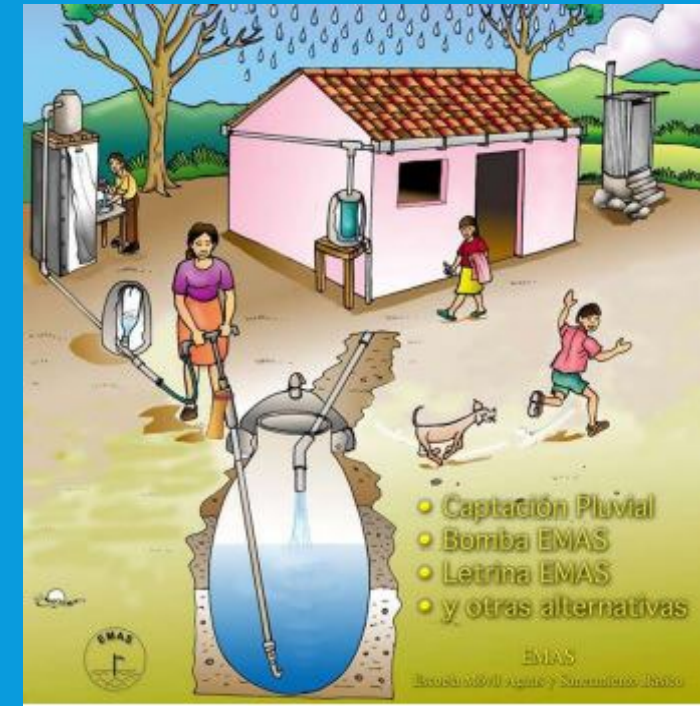
RAINWATER HARVESTING / GROUNDWATER RECHARGE AT LARGER SCALE

- Half moon bunds (JustDiggIt)
- Run off water from roads (Green Roads for Water)
- Sand dams (Kitui dams)
- Sponge cities
- Water Spreading Weirs



RAINWATER STORAGE AT SMALL SCALE HOUSEHOLD LEVEL

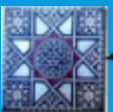
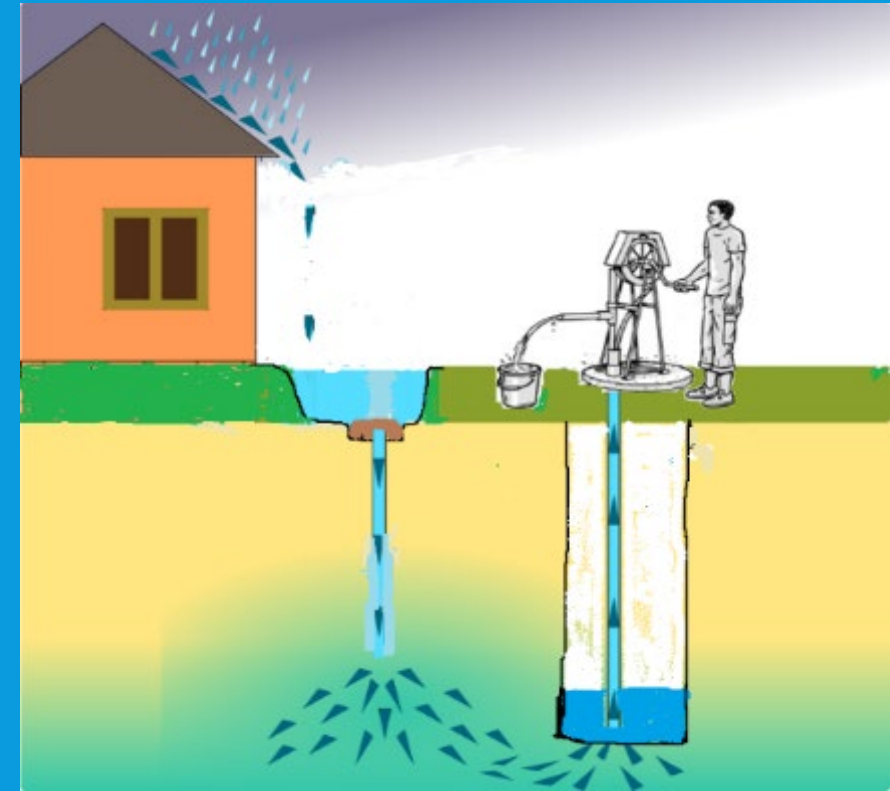
Plastic tanks, Plastic liners	\$5-\$10/m ³
Wire-brick cement tank	\$15-\$20/ m ³
EMAS Underground tank	\$10-\$20/m ³



GROUNDWATER RECHARGE AT SMALL SCALE HOUSEHOLD LEVEL

The Tube recharge

- Installed near wells that dry up
- Stores 50- 200 m³ / year
- Cost of materials; \$20



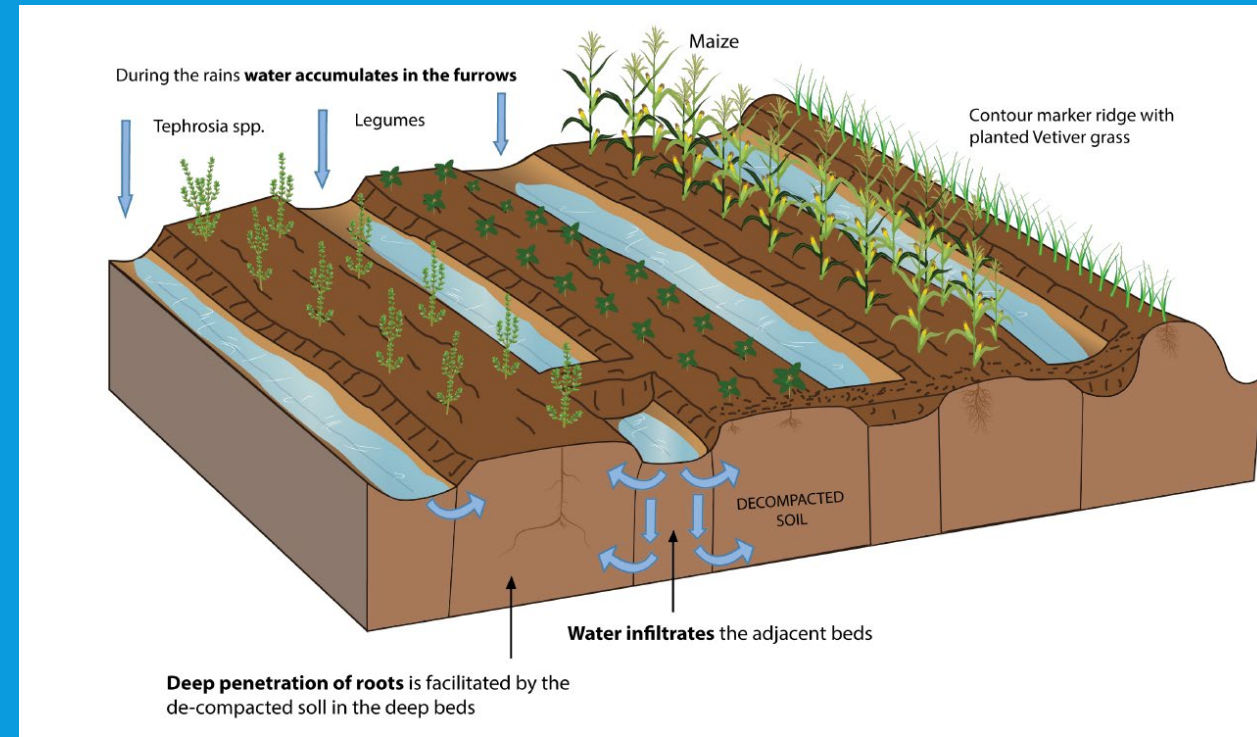
META
META



GROUNDWATER RECHARGE

HOUSEHOLD / FARM LEVEL - DEEP BED FARMING

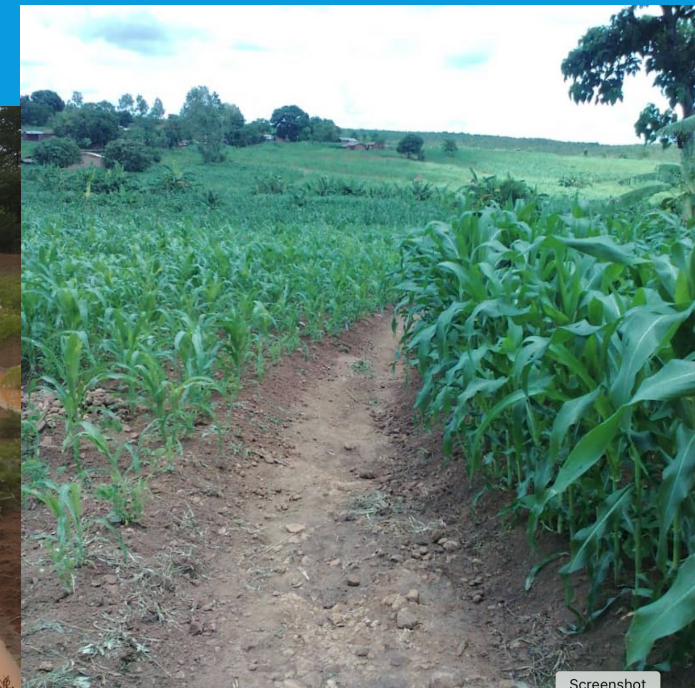
- Breaking the “hard pan” to 30 cm deep
- All rainwater infiltrates, even on slopes, during heavy rains
- Combined with Regenerative farming, mulching, minimum tillage, no fertiliser..



EFFECTS OF DEEP BED FARMING

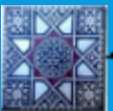
- Yields from 2 to 6 tonnes/ha, without fertilizer
- Applied by 17.000 farmers in Malawi, may scale to 1 million.
- Recharge shallow groundwater (long term) & farmers become Catchment Managers
- Increased access to water for domestic use by households

Info: www.tiyeni.org



WATER CHALLENGES RURAL SUB-SAHARAN AFRICA

- > 300 million lack “basic service”
(source within 30 min. from home)
- 20 - 40% hand pumps broken
due to lack of ownership or funds



META
META



The
SMART
Centre
Group

A SOLUTION? SUPPORTED SELF- SUPPLY

"BASIC SERVICE" AT \$25/CAP

Supported self supply combines :

- SMARTechs Smart, Market-based, Affordable, Repairable Technologies.
- Local Ownership 1 family owner instead community. Water shared with 30-50 people
- Profit Productive use of water = food and income = money for repairs
- Training Long term coaching to guarantee quality. Lesson is "Simple is not easy"



EXAMPLES SUPPORTED SELF-SUPPLY

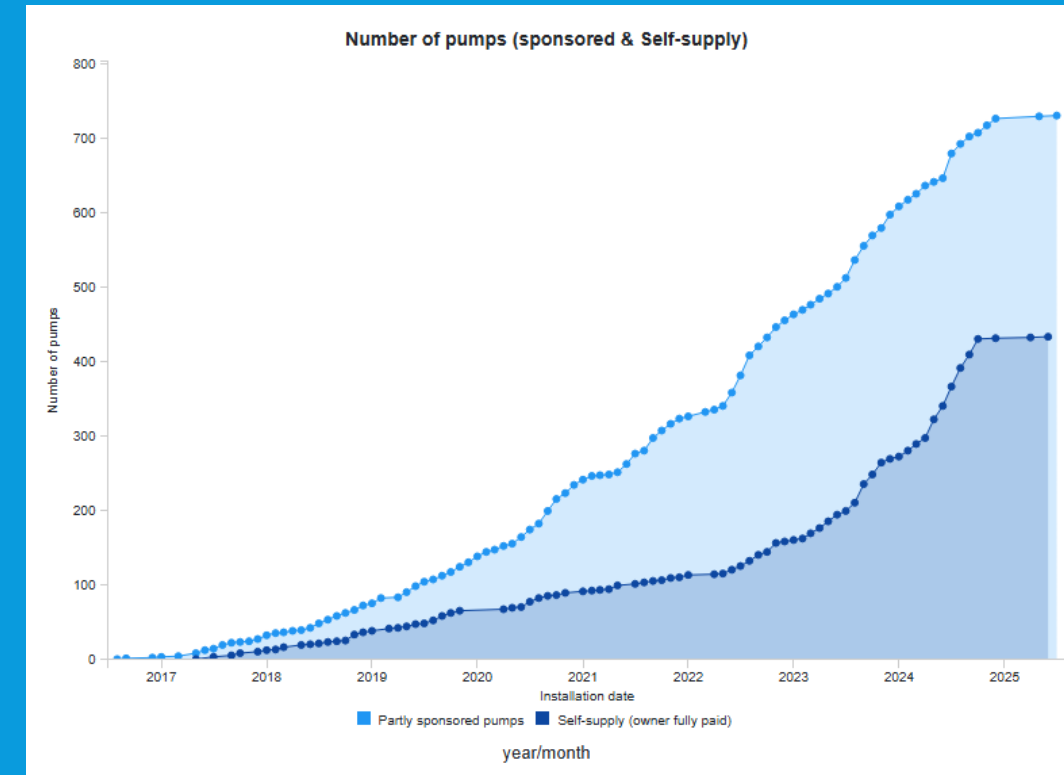
Zambia

600 subsidized wells. Results:

- 1 well of \$1000 serves 40 people, so \$25/person
- >90% pumps function! (IRC evaluation, 2022)
- Demand creation, over 400 families fully paid themselves (self-supply)

Tanzania

- Started with 700 subsidized wells/ pumps in 2008
- Now >15.000 rope pumps, 80% self-supply



mWater monitoring of pumps in Zambia (Jacana, Aug 2025)

<https://jacana.help/mwater/>



EFFECTS SUPPORTING SELF – SUPPLY

- Families willing to co-invest in their own water system
- Families who have a well share water with 10 to 50 others (basic service level)
- Less headache with broken pumps, families do maintenance
- Impact on SDGs in rural areas; Poverty, Food, Gender, Water, Work & Climate



SUPPORTING SELF – SUPPLY

→ INNOVATIVE FINANCE TO REACH SDG6.1 BASIC SERVICE

- Reach SDG6.1 at half the cost of conventional communal water supply
- Additional impact; SDG's Poverty, Food, Gender, Water, Work & Climate
- > 90% of the pumps are functioning!!



INFORMATION

- Green Roads for Water
<https://roadsforwater.org/>
- Deep Bed Farming
www.tiyeni.org
- Info on supported self supply
www.smartcentregroup.com
- Reach SDG6.1 with subsidized farm wells?
www.smartcentrezambia.com



The
SMART
Centre
Group

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



Information on Rainwater
Harvesting, Roads for Water,
SMARTechs

www.smartcentregroup.com /
www.metameta.nl



Reinier.Veldman@gopa.eu
henkholtslag49@gmail.com



Thank you!