

Self-supply

A promising option for water and food for millions

Of the 780 million people worldwide without an improved water source, some 80% live in rural areas.* The number of unserved in Sub-Saharan Africa increased with 66 million people since 1990!. One billion poor farmers worldwide could double the food production if they would have access to markets, simple farm tools and.....access to affordable irrigation**. Budgets for water and food are limited, aid is reducing and population in poor countries is growing fast. With conventional technologies and approaches it is impossible to reach the goal “water and food for all” so new approaches are needed. Some ideas

Smart Water solutions

One option to increase access to drinking water and water for food production is scaling up Self-supply which differs from communal supply in that (groups of) families invest themselves. More than 10 years ago Self-supply is possible because of innovative low-cost technologies or so called Smart Water Solutions (SWS). These are simple and effective options that can be produced by the local private sector resulting in a “profit-based sustainability” and availability of spare parts. Water quality can be improved by hygiene education and water treatment at the household level. Water quantity can be increased by upgrading existing hand dug wells or make new wells with manual drilling technologies. SWS include options that avoid collapsing of wells and cost 20US\$, recharge 500m³ of rainwater in the ground at a cost of 10 US\$, irrigate half an acre with a pedal pump, pump water from 35 meters deep with a 80US\$ hand pump or make water safe to drink with water filters of 15US\$. A major part of the some 4 million open hand dug wells in Africa now often dry up but can have water all year round and be improved with a well cover and a pump at a cost of 100-250 US\$ per well and so count as an improved water source (MDG#7).

Some effects of SWS:

- **Bolivia.** Over 30.000 family wells made with EMAS and Baptist drilling. Cost of a 15 - 50 metre deep borehole, including pump 150–400 US\$ resp.
- **Nicaragua.** 70.000 Rope pumps installed. Total income increase with these pumps was \$100 million in the 12 years. Family incomes increased 220 US\$/year.***
- **Bangladesh.** 17 Million small poor farmers came out of poverty with Low- cost pedal pumps (treadle pumps) for irrigation.**
- **Tanzania.** The shift from machine drilled boreholes and imported piston pumps to manual drilling and locally produced Rope pumps reduced the cost of water points from \$3000 to \$800. Now families buy Rope pumps for self-supply, and 95%, are functioning.

Self-supply Reasons to stimulate Self supply are:

- Communal supply will not reach all and the village based maintenance often fails.
- Increasing population, limited local funds and less aid
- Families invest themselves
- Eliminates the “eternal headache” of pump maintenance, families maintain their pump
- Leads to productive use, more income. Communal supply does not

Self-supply often becomes communal supply since families will get or buy water from their neighbors. Water near the house stimulates productive use for animals, irrigation etc. A pump in the garden “automatically” increases incomes as has been proven in Nicaragua and other countries. Income generated from a household pump often benefits women. To avoid water borne diseases from Self supply wells, it is strongly advised to use some kind of Household water treatment like boiling, chlorination or water filters. New effective water filters now are available at retail prices of 15 -25 US\$

SMART Centres

More than before Self-supply is possible thanks to new affordable technologies; the challenge now is large scale dissemination of existing and new options and that requires large scale capacity building. One option to do this is via so called SMART Centres which concentrate

knowledge in one place, demonstrate new options and train in production, quality control, marketing etc. Almost all technologies can be produced with local materials and the private sector can sell to NGOs but also to families. This creates employment and a sustainability based on profit so actions will go on after project funds stop.

Experiences with the SHIPO SMART Centre in Tanzania after 6 years:

- 20 Manual well drilling and pump companies trained
- 4000 Rope pumps installed of which 30% for Self-supply
- Cost reduction of rural water points from \$40 to \$15 per capita

Scaling up To scale up SWS and Self supply major actions are:

Awareness. Publish lessons learned and demonstrate real examples of SWS to families, NGOs, governments and others..

Supply chain. Build up product supply chains of SWS by training local private sector in production, installation, marketing, business management etc.

Financing. Provide payment options like micro credits for those who can not pay in one time.

In short, Self-supply results in increased access to water for domestic use and irrigation and so economic development. It is a promising option for water and food for millions.

	
<p>Manual drilling Rota sludge, SHIPO or EMAS drill methods can drill 40-80 m deep resp. in semi hard soils at cost of 5 to 15US\$ / metre incl. casing</p>	<p>Tube bailer, Underlining, Tube recharge, Rope pump. All options to improve open hand dug wells.</p>
	
<p>Treadle pump. Suction pumps for irrigation. Over 1.5 mln sold in Asia and 200.000 in Africa</p>	<p>Table top Household water filter Used in Malawi. Removes 99,99 % of harmful bacteria, filters 40 ltr/day. Retail price 12-18US\$</p>

References

* UNICEF 2012 . ** The business solution to poverty, P. Polak. ***Alberts. H.,Zee. J van der 2004. A multi sectoral approach to sustainable rural water supply in Nicaragua: The role of the Rope handpump.

This and info on Rope pumps on www.ropepump.com. www.ropepumps.org

*** Info www.connectinternatioal.nl Manual drilling; www.rwsn.org Info recharge, 3R; www.bebuffered.com "Smart Water Solutions" and other booklets on sanitation, Water harvesting on www.akvo.org, www.irc.org

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