

# 6 Practical ideas for SDG6 and related SDGs

Worldwide, 2.1 billion people do not have safe drinking water due to failing piped system non-functioning handpumps etc.. Even water from improved water sources is often not safe or becomes re-contaminated due to unsafe storage at home. Of the 660 million people who do not yet have an improved water source, 80% live in rural areas (UNICEF 2019). Communal water systems in rural areas (boreholes and hand pumps) are normally used by 250 people/water point. For smaller communities these technologies have a high cost per person and with limited funding the question is, *“how can we leave no one behind, how can we reach the yet unserved in the small, remote and poor communities”?*. There are no silver bullets, but with innovative technologies and approaches it is possible to reach a large part of the SDG6 target group at a cost of \$2 to \$30/person for water and sanitation.

Based on 25 years field experiences we present 6 practical ideas that can assist in **reaching the SDG6 in rural and peri urban areas and have impact on water related goals; SDG1 (Poverty), 2 (Food), 3 (Health) and 8 (Youth Employment)**. The ideas include:

## 1. Household Water Treatment.

For the 2.1 billion people without safe water the most cost-effective short term solutions are A; Treatment at Point of Entry (Water kiosks, etc.) and B; Treatment at Point of Use (boiling, chlorine, filters). Of these options the most user-friendly and attractive option is an effective household water filter. For an estimated donor investment of \$2/person everyone can have safe water before 2030 by investing in: 1; Awareness, 2; Supply chains, 3; Payment systems and 4; Support for the poorest.

## 2. Shift from CBM to FBM.

In rural Africa there are over 1 million hand pumps using Community Based Management (CBM). Over 35% of these pumps are not functioning, often because of a lack of ownership (lack of funds for repairs). If a pump is installed near the house of a family, it can have Family Based Management (FBM) which will generally be maintained and repaired because the family has the convenience of water near the house, so water for garden irrigation, livestock, and income of payment for water.

## 3. Innovation in technologies, use SMARTechs.

In areas without rocks, wells can be drilled up to 60 m deep and water be pumped with locally produced drill sets and hand pumps. A range of these technologies is called SMARTechs (Simple, Market-based, Affordable, Replicable, Technologies). Examples are: manual well drilling with augers, bailing or jetting, hand pumps like EMAS or Rope pumps, Tube recharge to avoid dry wells, etc.. Local production of technologies results in a cost reduction, availability of spares and increased options for self-supply.

## 4. Scale up self-supply.

Self-supply means families themselves investing in their water supply, such as the millions of hand dug wells existing in Africa. Open wells can be improved with a well cover and a hand pump. New wells can be drilled with “well clubs” where families drill their own well. Tube wells of 20 - 60 m deep cost \$150 to \$1000 including a pump. Regulation is needed to avoid over-abstraction of groundwater and self-supply wells should be combined with water filters to ensure water quality. Experience show that families with a well will share with 50 other people so family owned becomes community served. Family systems have impact on SDG 1, 2, 3, 6 and 8, so essential for rural development.

## 5. Focus on the 3 Ts,

Key for all these actions are the 3 Ts (Training, Training, Training). Training of policymakers in new options, of communities in management, of system designers, and technicians in production, of entrepreneurs in business skills and marketing, etc..

## 6. Equal subsidies.

People who now have an improved water source were subsidized for infrastructure (CAPEX) with some \$25/capita in rural areas to \$50 in urban areas. The remaining 660 million unserved have a ‘right’ to a similar subsidy. One option to fund the yet unserved in rural areas is to use profits from urban water supply (cross subsidy).



## 1. Household Water Treatment

The most cost-effective option for safe water is treatment at the household level with boiling, chlorine or filters (WHO 2018). Chlorine does not eliminate Cryptosporidium, and has less consistent use than filters. If filters are used consistently they reduce waterborne diseases by 61% (Cochrane 2015).

Good quality filters include Sawyer, Aqua Clara, Tulip and NAZAVA ranging in cost from \$18 - \$35. The last 3 filter models are now produced / assembled in Africa.

## 2. Shift from CBM to FMB

An example of FMB is Mrs. Teresa in Bilibiza Northern Mozambique. She owns a Rope pump on a hand drilled well of 20 meters deep. Cost of this system ca \$ 800.

She sells water to 50 families at \$ 0.02 dollar / bucket. This gives her a salary and money for repairs. Mrs. Teresa now has money to buy a 2nd well and pump. She pays 50% of the investment cost (\$ 400) and the other 50% is subsidy of an NGO.



## 3. Innovative technologies, SMARTechs.

Wells (boreholes) are the expensive part of a water system. In an estimated 60% of the rural areas in Africa it is possible to drill with manual drilling like Rotary jetting, SHIPO, Mzuzu or EMAS at a cost of \$100 to \$1000 per well. Locally produced EMAS or Rope pumps generally cost 70 - 80% less than imported pumps. Other SMARTechs include solar pumps, Tube recharge to avoid dry wells, Wire cement tanks, etc. See SMARTechs catalogue.

## 4 Scale up self-supply.

With new technologies it is possible to expand the number of self-supply/ family wells. Over 45% of African families are small farmers. If they would have their own water supply, they could double food production and increase family incomes with 50-500US\$/yr. Scaling self-supply needs examples. An example is Tanzania where subsidized community pumps created the market for 6000 family pumps. Promoting self-supply should be combined with promoting Point of use treatment like filters to ensure water quality.



## 5 Focus on the 3 Ts: Training, T..., T.....

To reach the SDGs over 3 million water practitioners are needed (IWA 2016). Training is needed in technical aspects like system design, production and non-technical aspects like business skills and marketing to build up commercial supply chains. There are lessons learned (Simple is not easy), so South-South exchange of experiences is needed in both failures and success. SMART Centres can give this type of training but to really scale up, knowledge on SMARTechs should be included in national vocational education systems.

## 6 Equal subsidies

Maybe a human right should be that, (if there are subsidies), every person has the right to the same subsidy. In general people who now have an improved water source were subsidized with \$25/person in rural areas to \$50 in urban areas for the investment in a well and pump. Do the remaining 660 million unserved not also have a 'right' to a similar subsidy? To reach 'the last mile' families could have a choice of using this subsidy for a communal well or use it for their own well. For instance if families invest in a well, an NGO can support with a pump. With tariffs in urban areas, water supply in rural areas could be supported.

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