

2 with 8

Safe drinking water for 2 billion people with a grant of \$8 billion

A bold Idea

With a budget of \$8 billion, a market-based and self-sustaining system could be established that provides affordable clean and safe drinking water at the point of use for 2 billion people.

Context

At the 2022 Stockholm Water Week there was (again) a call for “action now!”. Over 2 billion people still drink water that is contaminated with faeces (WHO 2022). In urban areas reasons include lack of funds for maintenance. In rural areas most of the open wells and part of the boreholes are contaminated. Even if a borehole provides safe drinking water, water often becomes re contaminated during transport or storage in the house. Safe drinking water with options like water kiosks or piped in systems cost \$25 to \$50 per capita for Capex so serving 2 billion people would cost \$50 to \$100 billion. An intermediate solution is household water treatment and safe storage (HWTS). To serve 2 billion seems possible with a 1 time grant of \$8 billion, so an average of \$4/capita. To provide safe water to 2 billion people in this way may even be possible in 8 years, the time remaining to 2030. This idea was formulated by a group of people and proposed in Stockholm by John Cherry, recipient of the 2020 Stockholm water prize.

Household Water Treatment

All people drink 1 to 4 litres of water per day, the challenge is to make that water clean and safe. An intermediate solution is HWTS with options like chlorine, UV or household water filters. Over 80 HWTS products are documented by the organisation CAWST and part of those products were tested by the WHO testing scheme. Some 40 products comply with the WHO criteria (WHO 2022). Each option has its limitations. For instance Chlorine is very effective in eliminating bacteria and viruses but not cryptosporidium, a significant cause of child mortality. It also has a taste if not dosed exactly right. Options with only UV do not function with turbidity. Boiling requires fuel. Filters in general are expensive. Still the filter market is booming in many countries. Popular options are inline filters (for piped systems) and gravity fed table top filters. There is a range of filters that are attractive, effective and affordable with prices of \$20 to \$60 per filter. Options with ceramic or diatom filter elements produce 30 - 100 ltrs/day and membrane filters can produce 100-1000 ltrs/day. Some models also remove viruses. If filters comply with 3 Cs, (Correct, Consistent, Continuous use) and if combined with improved hygiene, they are very effective in reducing water borne diseases. (Wolf. 2018)

Failures, lessons and success

This idea was formulated based on 30 years of experience with HWTS products and projects mostly failures. For instance in a project in East Africa 900.000 filters were given for free but after some time most filters were not in use anymore (IRC 2011). Reasons include complicated maintenance and as a free gift, there was limited ownership by the users. However increasingly there are successes. For example in Ethiopia the organisation Aqua for All helped to start a local production of table top filters in 2015 and over 350.000 are sold to date (Tulip addis 2022). Clients are NGOs but also families who pay the full price of around \$22. Interesting in Ethiopia is that a growing number of water utilities accept that they cannot always deliver safe water among others due to power cuts, so families have to store water. As an additional service these utilities now sell filters to customers and others (Foppen. 2019). This and other proven and functioning examples could be scaled up.

2 with 8

The goal of the “2 with 8” initiative is to stimulate action! To show that with an average of \$4 per person 2 billion people can have options to make their water clean and free from biological contamination and protozoa. In case of chemicals (Arsenic, fluor,...), an option is rain water. Even in areas with 250mm rain/year, 4000 litre can be collected from a house with a roof of 20 square meters. With a filter this water can be made safe to drink.

Actions needed include;

1. Wide scale awareness creation.

For instance awareness that clear water can still be contaminated, but also awareness on the economic benefits like reduction of health-related costs. For instance, 1 visit to the hospital may already cost more than a filter. Also awareness on low-cost options and how to use and maintain them. This awareness needs to be nationwide and for 2 to 5 years on radio, television, social media. An example of such campaign is in Cambodia with the Tunsai filter. (IDE 2018)

2. Supply chains of HTWS options

Build up commercial supply chains of effective, attractive and affordable HWTS products. In each city and town there should be shops or outlets that sell 3 or more options with different prices so people have choices. HWTS products should preferably comply with the WHO criteria or at least national standards. Options should also comply with the 3Cs and be market-based meaning that after the start-up support, the supply chain will proceed on a commercial base without NGO or other support

3. Payment systems

Micro credit, pay as you use, group credit. An example can be the Grameen bank

4. Subsidies for the poor

Households can be divided in:

- Those who can afford upfront payment
- Those who need payment in instalments
- Those who cannot pay the full price.

An estimated 1 billion people cannot or will not buy an option like a filter, not even when it is only \$5. They need a subsidy. To avoid that subsidies distort the market, voucher systems can be applied. With a voucher of for instance \$20 a family goes to the local shop, pay \$3 and get a filter of \$23. If they want an option that cost \$33 they pay \$13. The voucher system will stimulate the commercial supply chain that also sells to medium and higher income families. So there will be a profit-based sustainability for a market-based supply chain.

Cost

The one-time grant to start this is an estimated \$8 billion. A very rough indication is; \$2.5 billion for awareness. Large scale, long term on social media on why of point of use treatment \$0.5 billion for building supply chains. Selecting, training the private sector, supporting governments, monitoring and evaluation, payment options \$5 billion for vouchers. (250 million filters @ \$20/filter). It is expected that a first grant, so a part of the needed funds, will stimulate governments, NGOs, donors to co-invest also.

Organisation and financial resources

The realisation will require cooperation of all stake holders including, Governments, Private sector, NGOs, Finance sector. The dissemination of vouchers could be realised by NGOs, faith organisations, local government. Funds could come from Governments, organisations and donors interested in reaching SDG6.1 and related SDGs for poverty and health (eg. stunting). A promising additional funding option is carbon credits. There are filter projects that receive carbon credits for saved or prevented fuel to boil water. These funds can be used to fund awareness creation and to reduce the cost of HWTS products. The producers of HWTS products could form a coalition similar to the solar light industry and so prove the impact. Donors, organisations could adopt a part of a country and based on experiences roll out to the whole country.

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