WHO International Scheme to Evaluate Household Water Treatment Technologies

Question and Answer Guide

Globally, 2 billion rely on water supplies that are faecally-contaminated, and approximately 485 000 diarrhoeal deaths in low- and middle-income countries each year are attributable to unsafe drinking-water. Household water treatment and safe storage (HWTS) is an important intervention to improve the safety of drinking-water, and can reduce the risk of diarrhoeal disease by as much as 61% when *effective* HWT methods are used *correctly and consistently* by *populations at risk* of waterborne disease.

1. Why an international scheme to evaluate household water treatment technologies?

The performance of HWT products varies widely, with some not providing any health benefit, and others providing comprehensive protection against microorganisms that cause diarrhoeal disease. Many low-income countries have neither the capacity nor the resources to evaluate HWT performance based on WHO recommendations. The WHO International Scheme to Evaluate Household Water Treatment Technologies (the Scheme) was established in 2014 to fill a growing need for rigorous and consistent health-based assessment of HWT technologies. The HWT Scheme follows the example of other WHO health-based global evaluation schemes including those on rapid diagnostic test for malaria, insecticide treated bed nets, and pharmaceuticals.

2. What products can be evaluated under the Scheme?

Products prioritized for evaluation under the Scheme are relatively low cost; are intended for use in low- and middle-income settings; and are market-ready. Faecal contamination is the cause of a large majority of the disease burden associated with unsafe drinking-water. Thus, candidate products for evaluation under the Scheme are those intended to treat water for microbial contaminants at the household level. Products intended to remove anthropogenic or naturally occurring chemical contaminants, including but not limited to pesticides, arsenic, fluoride, heavy metals, nitrate, excess salts, disinfection by-products, pharmaceuticals, are currently not evaluated under the Scheme.

3. What is the procedure for evaluation?

The Scheme is coordinated by the Water, Sanitation, Hygiene and Health Unit at WHO headquarters. WHO works with an independent advisory committee (IAC) of experts in drinking-water treatment, microbiology and epidemiology, and designated testing laboratories to objectively evaluate the performance of submitted HWT products. Evaluation of HWT products under the Scheme is based on manufacturers voluntarily submitting an Expression of Interest (EoI) and product dossier to WHO. EoIs meeting the aforementioned criteria are selected for detailed review by the Scheme Secretariat, with input from the IAC. Upon receipt of the evaluation fee [1], WHO works with the designated testing laboratories and the IAC to develop a product testing protocol. Testing is overseen by WHO, with input from the IAC who also review test reports and provide input on performance classification. Test reports are shared with manufacturers for review and comment before publication.

4. What are the evaluation criteria?

The performance of HWT products is classified as 3-star (★★★); 2-star (★★); and 1-star (★), denoting descending order of performance, based on log10 reductions of bacteria, viruses and protozoa from drinking-water. Performance that does not meet the minimum target is given no stars. The microbiological reductions required for the three categories of performance are shown below:

WHO performance criteria for HWT technologies

Performance classification	**Bacteria** (log_{10} reduction required)	**Viruses** (log_{10} reduction required)	**Protozoa** (log_{10} reduction required)	**Interpretation** (with correct and consistent use)
★★★	**≥ 4**	**≥ 5**	**≥ 4**	Comprehensive protection
★★	**≥ 2**	**≥ 3**	**≥ 2**	
★	Meets at least two-star (★★) criteria for two classes of pathogens			Targeted protection
–	Fails to meet criteria for one-star (★)			Little or no protection

[1] WHO charges a subsidized fee for evaluation under the Scheme. The subsidy criteria are outlined in the *Procedure for Evaluation*: *WHO International Scheme to Evaluate Household Water Treatment (HWT) Technologies* https://www.who.int/water_sanitation_health/water-quality/household/how-evaluation-scheme-works/en/

5. Where are the products tested?

The two designated testing laboratories are: KWR Watercycle Research Institute in the Netherlands and NSF International in the United States of America. The criteria applied in the selection of the testing laboratories can be found on the Scheme webpage.

6. How much is the evaluation fee?

The full cost of evaluation depends on the technology and evaluation protocol to be followed. As funds allow, WHO, with support from donors, subsidizes the actual cost to enable all interested manufacturers, including those from developing countries to participate.

7. How are the evaluation results communicated?

The summary results of the products that are found to meet WHO performance criteria are listed on the WHO website, and a comprehensive report of the results of each round of evaluation is published. WHO also disseminates this list and the summary report to Member States, procuring agencies and other stakeholders. In addition, WHO works with Member States to build national regulatory and evaluation capacity.

8. Are manufacturers whose products have achieved one of the performance levels able to use the WHO logo?

Manufacturers whose products have been found to meet one of the WHO recommended performance criteria, may discreetly mention this in technical material relating to the product. However, the use of the WHO name and / or emblem for any commercial or promotional purposes is not permitted.

9. Do products that have been evaluated under the Scheme require certification elsewhere?

Evaluation under the Scheme does not constitute a certification, as WHO is not a certifying body; this is the prerogative of national regulatory authorities. Performance evaluation is a component of the product certification process, and through the Scheme, WHO carries out this service on behalf of countries that would otherwise not have the resources nor the capacity to rigorously evaluate HWT products. As such, the results of the Scheme evaluation form the basis on which national regulatory authorities can then certify or authorize products for sale or distribution within their countries. WHO is working with national governments to fast track the authorization of products that have been evaluated the Scheme.

10. What else is WHO doing to support uptake of these results at the national level?

WHO is working in several countries to promote and facilitate dialogue between water, health and regulatory officials on the importance of HWT performance in protecting health, and disseminate results of the Scheme. Additionally, WHO is working to strengthen and streamline regulations and standard setting on HWT in countries. This includes training national laboratories in HWT performance evaluation, and exploring a variety of candidate microbes under different environmental conditions and technologies to support simple protocol development.

11. How is the Scheme linked to broader efforts to ensure effective targeting and use of HWT products where water quality is compromised?

Ensuring effective targeting and use of HWT and safe storage involves understanding where, by whom and how it is being used. WHO is engaging with partners within the International Network on Household Water Treatment and Safe Storage to develop tools to help select HWT, and learn about how to segment the market to reach particular groups, when and where to provide subsidies, and how to better understand consumer needs and reflect this understanding through improved design, user support and communication of HWT benefits. In addition, WHO and UNICEF developed a toolkit to support field monitoring and evaluation of HWT, and is working with Network partners to support use, and share results from the use of the toolkit. Finally, more broadly, WHO is working to integrate aspects of HWTS into water safety planning as well as regulation of drinking-water supplies as part of a wider package of work on improving safely managed drinking-water services.