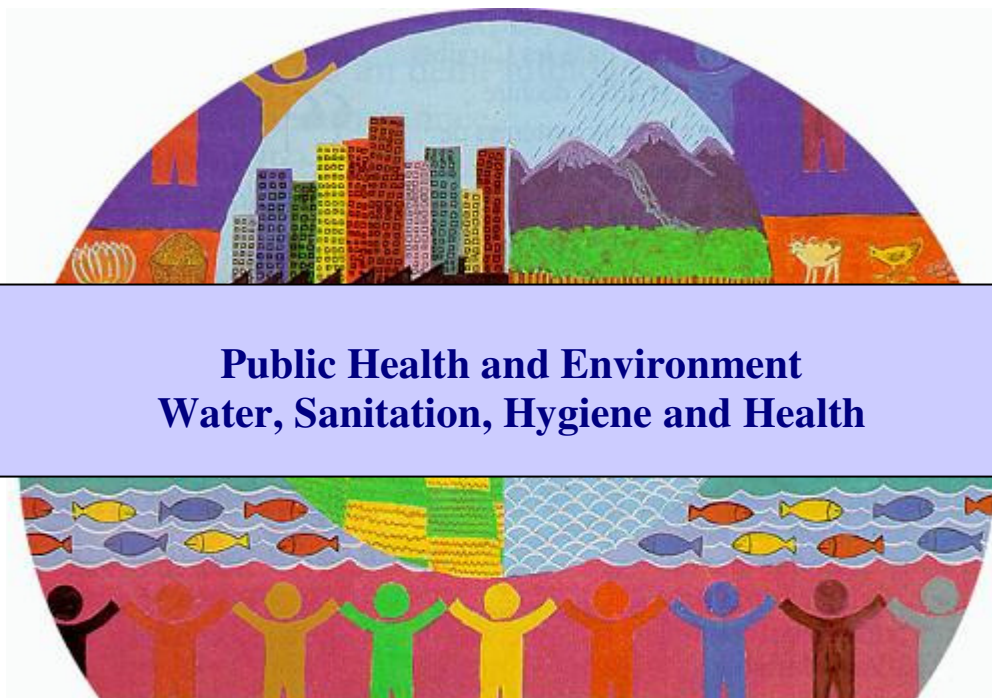


# **Scaling Up Household Water Treatment Among Low-Income Populations**



**Public Health and Environment  
Water, Sanitation, Hygiene and Health**



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Public Health and Environment  
Water, Sanitation, Hygiene and Health  
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**Scaling Up Household Water Treatment Among Low-Income Populations**

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## LIST OF ACRONYMS

AIDS	acquired immunodeficiency syndrome
BRAC	(formerly) Bangladesh Rural Advancement Committee
CAWST	Centre for Affordable Water and Sanitation Technology
CDC	Centers for Disease Control and Prevention (United States of America)
CFU	colony-forming units
CI	confidence interval
EAWAG	Swiss Federal Institute for Environmental Sciences and Technology
ENPHO	Environment and Public Health Organization
HIV	human immunodeficiency virus
HWTS	household water treatment and safe storage
IDE	International Development Enterprises
JMP	Joint Monitoring Programme for Water Supply and Sanitation (WHO/UNICEF)
KWAHO	Kenya Water for Health Organisation
LRV	$\log_{10}$ reduction values
MDG	Millennium Development Goal
NaDCC	sodium dichlorisocyanurate
NGO	nongovernmental organization
OR	odds ratio
PAHO	Pan-American Health Organization
PATH	Program for Appropriate Technology in Health
POUZN	point-of-use water treatment with zinc supplements
PSI	Population Services International
RBM	Roll Back Malaria
RDI	Rural Development International
SANDEC	Department of Water and Sanitation in Developing Countries
SWS	safe water system
UN	United Nations
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
USEPA	United States Environmental Protection Agency
WHO	World Health Organization

## SUMMARY

Providing safe, reliable, piped-in water to every household is an essential goal, yielding optimal health gains while contributing to the Millennium Development Goal (MDG) targets for poverty reduction, nutrition, childhood survival, school attendance, gender equity and environmental sustainability. While strongly committed to this goal and to incremental improvements in water supplies wherever possible, the World Health Organization (WHO) and others have called for targeted, interim approaches that will accelerate the health gains associated with safe drinking-water for those whose water supplies are unsafe.

Interventions to treat and maintain the microbial quality of water at the household level are among the most promising of these approaches. In many settings, both rural and urban, people have access to sufficient quantities of water, but that water is unsafe. Effective household water treatment and safe storage (HWTS)—if used correctly and consistently—can significantly improve the microbiological integrity of the water at the point of ingestion. Ensuring widespread and equitable access to effective HWTS solutions to those for whom water is a significant pathway for the transmission of enteric infection can deliver some of the health benefits of improved water supplies and thus complement other efforts in water, sanitation and hygiene.

This report examines the evidence to date regarding the scalability of HWTS. It seeks to consolidate existing knowledge and experience and distill the lessons learnt. Its primary aims are to 1) review the development and evolution of leading household water treatment technologies in their efforts to achieve scale, 2) identify the main constraints that they have encountered and 3) recommend ways forward.

The report begins by defining scale in terms of both coverage (supply) and uptake (demand and correct/consistent use) by a vulnerable population. Section 2 examines efforts to scale up other important household-based interventions—sanitation, oral rehydration salts, guinea worm filters and insecticide-treated mosquito nets—for lessons of potential value to scaling up HWTS. Among the important recurring themes from such interventions are the need to 1) focus on the user's attitudes and aspirations; 2) take advantage of simple technologies to minimize the need for intensive behaviour change promotion; 3) promote non-health benefits, such as cost savings, convenience and aesthetic appeal; 4) use schools, clinics and women's groups to gain access to more vulnerable population segments; 5) take advantage of existing manufacturers and supply channels to extend coverage; 6) provide performance-based financial incentives to drive distribution; 7) align international support and cooperation to encourage large-scale donor funding; 8) use free distribution to achieve rapid scale-up and improve equity; 9) use targeted subsidies, where possible, to leverage donor funding; and 10) encourage internationally accepted standards to ensure product quality.

Section 3 presents case-studies of the most common HWTS products and technologies that are being promoted by governments, United Nations (UN) agencies, nongovernmental organizations (NGOs), social marketers and the private sector. Boiling is the most prevalent means of treating water in the home; it is practised by hundreds of millions of people, perhaps because the necessary hardware are already available in most cases. In certain Asian countries, boiling is practised by more than 90% of the population. Boiling is among the most effective methods of improving the microbiological

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