



A woman in Delhi treats water stored in a SWS container with PSI/India Safewat water treatment solution (WHO / Pierre Virot)

An estimated 1.1 billion persons worldwide lack access to an improved water source. Hundreds of millions more drink contaminated water because of unsafe water treatment and distribution systems and unsafe water storage and handling practices. Waterborne diseases account for approximately 4 billion episodes of illness and 1.9 million deaths every year, disproportionately affecting young children. CDC and its partners have responded to this challenge with the advent of a simple low-cost technology to prevent waterborne diseases by improving the quality of drinking water at the household level.

The Safe Water System (SWS) incorporates three elements:

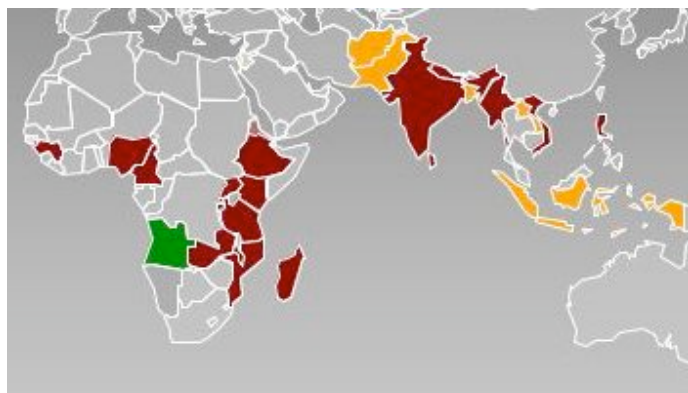
- 1) Point-of-use water treatment by consumers with a locally-manufactured dilute sodium hypochlorite (bleach) solution;
- 2) Safe storage of treated water in containers designed to prevent recontamination; and,
- 3) Behavior change communications to improve water and food handling, sanitation, and hygiene practices in the home and in the community.

A family of five spends about 25 US cents each month to benefit from the Safe Water System. Safe Water System products are produced and distributed through public-private partnerships and market-based approaches, with community mobilization implemented by NGO partners to encourage correct and consistent use and reach high-risk populations. Safe Water System programs exist in 25 countries in Africa, Asia, and Latin America.

Translating the Science of the SWS to Global Action for the World's Poor

In a series of published randomized intervention trials conducted by CDC in three continents, the Safe Water System has been shown to reduce diarrheal disease incidence by 25-84%, with an average of 50%. The Safe Water System has been particularly effective in protecting the most vulnerable populations: infants, immunocompromised individuals and their families, and communities experiencing epidemic cholera.

As of July 2007, national or sub-national Safe Water System programs exist in 25 countries: Afghanistan, Bangladesh, Burundi, Burma, Ethiopia, Guinea, Guyana, Haiti, India, Indonesia, Kenya, Laos, Madagascar, Malawi, Mozambique, Nepal, Nigeria, Pakistan, Philippines, Rwanda, Sri Lanka, Tanzania, Uganda, Vietnam, and Zambia. In the coming year, programs will be launched in six additional countries. New or expanding avenues for Safe Water System implementation include projects among persons with HIV/AIDS, and behavior change communication and product distribution in schools, clinics, and through



*Countries in Africa and Asia with SWS Programs
Red indicates programs with NGO partner PSI
Green indicates planned PSI countries
Yellow indicates other partners or study countries*

<http://www.cdc.gov/safewater>

Centers for Disease Control and Prevention
U.S. Department of Health and Human Services



Safe Water System (SWS) Program Highlights



Clorin SWS solution has been sold by PSI/Zambia since 1998. Over 1.8 million bottles, treating over 1.8 billion liters of water, were sold in 2005.



This Afghan child, collecting water from a polluted surface water source, benefits from the SWS project that began in 2003

- **The PSI/SWS Partnership, 1998-2008:** The social marketing NGO Population Services International (PSI) has partnered with CDC to launch chlorine solution product in 19 countries. Over 12 million bottles are sold per year, treating over 12 billion liters of water, directly to consumers and to NGOs and other partners who use the products in community mobilization programs.
- **Indonesia Project, 2004-2008:** In early 2006, a private-sector company, working in collaboration with Johns Hopkins University Center for Communications Program, CARE, and CDC, launched a self-sustaining SWS project. SWS products, developed in 2004 for this project, were used to respond within days of the December 2004 tsunami to reach tens of thousands of affected families.
- **Safe Water System and PuR®, 1995-2008:** In 1995, CDC signed a CRADA with the Procter & Gamble Company that led to the development of PuR®, a next-generation product for point-of-use water treatment. CDC worked with P&G to evaluate PuR®, and proved that it improves drinking water quality by removing microorganisms and chemicals, such as arsenic, and reduces diarrhea risk. Over 25 million sachets of PuR® have been used in test markets and relief efforts.
- **Safe Water and AIDS Project, 2005-2008:** Kenyan women living with HIV/AIDS have proven themselves effective change agents, delivering health products and motivational messages to neighbors and friends. A large-scale project expansion is underway, with hundreds of groups selling the PSI WaterGuard SWS product to rural families as an income generating activity, using microcredit to access WaterGuard and other PSI products.
- **Afghanistan Project Launch, 2003-2008:** An SWS project in Afghanistan was launched in June 2003, and has grown steadily. The Gates Foundation funded a project that provided the SWS, safe water storage vessels and hygiene kits, free to more than 10,000 pregnant women and new mothers.
- **SWS and HIV/AIDS, 2002-2008:** In 2002, a CDC study in Uganda documented a 30% reduction in diarrhea among persons with AIDS who use the SWS. The SWS has since been provided to patients with HIV/AIDS at voluntary counseling and testing sites and in programs to prevent mother to child transmission of HIV/AIDS in Uganda, Kenya, and Nigeria.
- **New partnerships:** CDC, USAID, and over 60 other organizations have joined together in the International Network for Household Treatment and Safe Storage of Water, with a secretariat based at WHO. The Center for Global Safe Water is a partnership of CDC, Emory University, and CARE oriented to training, evaluation and provision of safe drinking water for the developing world.
- **New projects:** In 2008, we will work to strengthen and deepen existing projects as well as launching new product models in Guyana and Pakistan.

Resources: U.S. government contributions have included financial support from USAID and CDC/HHS, as well as program technical support and evaluation from CDC/HHS. International organizations and civil society groups have also provided financial support to numerous projects.

Selected Partners:

Governments:	Ministry of Health and Ministry of Water in project countries. International development agencies in Japan, England, Germany, Holland, and the United States.
International Organizations:	UNICEF, WHO, PAHO, World Bank, Inter-American Development Bank.
Private Sector:	Procter & Gamble Company, Chlorine Chemistry Council, Arch Chemicals, Coca-Cola, and local bleach producing and plastic producing companies in each project country.
Civil Society:	PSI, CARE International, Bill and Melinda Gates Foundation, Rotary International, AED.
Faith-based organizations:	Hope Worldwide, CRS, ADRA, Medical Missions of Haiti, International Mission Board, Southern Baptist Convention.
Universities:	Emory University, UNC, Medical University of South Carolina, MIT, Johns Hopkins Univ.