wash plus weekly

Supportive Environments for Healthy Communities

Issue 89 | February 15, 2013 | Focus on Household Water Treatment & Safe Storage (HWTS)

This issue features recent HWTS conference presentations, journal articles, and reports. Included are a monitoring and evaluation toolkit and health impact studies from Ghana, Haiti, and Zambia. Other resources include a guide for entrepreneurs on developing a water treatment business and a market assessment for water supply, sanitation and hygiene services in Indonesia. This issue also provides links to HWTS websites and past Weekly issues on HWTS.

REPORTS/BLOG POSTS

- **Access to Safe Water for the Bottom of Pyramid: Strategies for Disseminating Technology Research Benefits. Technology Packaging Study**, 2012. Society for Technology and Action for Rural Advancement. (Full text)
  This study highlights the disconnect between existing (nano) technologies that can effectively purify water and the large population that needs access to these technologies. The first chapter introduces the initiative and lays the context for the study. The second chapter maps short-listed nano-based technologies both at the research and market stages. The pilot will take forward some of these technologies. Chapter 3 traces the life cycle of a water filter right from the research stage up to disposal. It also highlights key issues that need to be considered while planning an intervention.

- **Household Water Treatment and Safe Storage in Malawi: A Preliminary Consultative Study**, 2012. R Rowe. (Full text, pdf)
  This report recommends five key actions to enable scaling up HWTS. First, the government should finalize its national strategy on HWTS declaring its key priorities, guiding stakeholders, and mobilizing resources. Second, HWTS should be integrated with key national platforms; health services for pregnant women are a particularly viable option. Third, institutional support and sector coordination can be improved by harmonizing existing policy, developing implementation guidelines, and formulating product standards. Fourth, the implementation of the national chlorine stock solution program needs to be strengthened. Fifth, efforts should be made to increase public

awareness, while continuing to consult with stakeholders on how to further integrate HWTS.

- **Household Water Treatment and Safe Storage Abstracts from the 2012 American Society of Tropical Medicine & Hygiene Conference**. WASHplus. (Bibliography, pdf)
  WASHplus compiled an annotated bibliography of 21 HWTS presentations at this 2012 conference.

- **Innovative Water Purification Tablet for the Developing World**. *Science Daily, Feb 2013*. (Full text)
  PureMadi, a nonprofit University of Virginia organization, has invented a simple ceramic water purification tablet. Called MadiDrop, the tablet — developed and extensively tested at U.Va. — is impregnated with silver or copper nanoparticles.

- **Presentations from the HWTS Annual Network Meeting**, 2012. (Link)
  During the 2012 annual meeting of the HWTS Network, participants discussed critical issues: the challenges of achieving scale in coverage, integration with other household environmental health interventions, monitoring & evaluation, successes and failures from the field, the recently released WHO performance evaluation guidelines, and the newly convened network working groups.

- **A Toolkit for Monitoring and Evaluating Household Water Treatment and Safe Storage Programmes**, 2012. WHO, UNICEF. (Full text, pdf)
  Integrated planning, combined with effective monitoring and evaluation (M&E), is critical to achieving program aims. M&E of HWTS includes: process monitoring to assess program implementation and quantitative analysis through surveys, direct observation, and water quality monitoring. As part of this document, a set of 20 indicators is recommended.

- **Water Business Kit Kenya: A Guide to Starting Your Own Water Treatment and Vending Business**, 2012. International Finance Corporation; Aquaya. (Full text, pdf)
  This guide provides small and medium enterprises and entrepreneurs with a step-by-step process to develop a water treatment and vending business in Kenya. Such businesses have been observed to serve customers in many parts of the world with high-quality, treated drinking water. These businesses represent the efforts of independent, local entrepreneurs to meet consumer demand for treated drinking water. Although the kit is based on research and information collected for Kenya, the guidance may be relevant to businesses in other countries.

- **Water and Sanitation Market Assessment: Potential Viability of WaterCredit & Microfinance Solutions in Indonesia**, 2012. WaterCredit.org. (Executive Summary)
  The Indonesia WaterCredit market assessment evaluates the market for water,

sanitation, and hygiene services in Indonesia and gauges potential opportunities to expand access to new or improved WASH solutions through financial services.

- **A Year in the Life of Dispensers for Safe Water**, 2012. E Green-Lowe. (Blog post)
  "Dispensers for Safe Water provides an innovative water treatment service—the Chlorine Dispenser System. We install chlorine dispensers at communal water sources such as wells and boreholes. To use the dispenser, community members simply turn the valve to release a measured dose of chlorine into their container, and then fill up the container with water as usual. The chlorine disinfects the water, and protects against recontamination during transport and storage, helping to ensure that water remains safe for everyone to drink."

JOURNAL ARTICLES

- **Assessing Water Filtration and Safe Storage in Households with Young Children of HIV-Positive Mothers: A Randomized, Controlled Trial in Zambia**. *PLoS ONE, Oct 2012*. R Peletz. (Full text, pdf)
  In this population living with HIV/AIDS, a water filter combined with safe storage used correctly and consistently, was highly effective in improving drinking water quality, and was protective against diarrhea.

- **Comparison of the Burden of Diarrhoeal Illness Among Individuals with and Without Household Cisterns in Northeast Brazil**. *BMC Infectious Diseases, Feb 2013*. P Marcynuk. (Full text, pdf)
  The One Million Cisterns Project was initiated in 2001 in Brazil's semi-arid region to provide a sustainable source of water to households. The objectives of this study were to determine the 30-day prevalence period of diarrhea in individuals with and without cisterns. A subgroup analysis was also conducted among children less than five years old. The results indicate that the use of cisterns for drinking water is associated with a decreased occurrence of diarrhea in this study population. Further research accounting for additional risk factors and preventative factors should be conducted.

- **Evaluating the Sustained Health Impact of Household Chlorination of Drinking Water in Rural Haiti.** *Am Jnl Trop Med Hyg, Nov 2012.* E Harshfield. (Full text, pdf)
  The Jolivert Safe Water for Families program has sold sodium hypochlorite solution (chlorine) and conducted household visits in rural Haiti since 2002. To assess the impact of the program on diarrheal disease, in 2010 the authors conducted a survey and water quality testing of 201 participant households and 425 control households selected at random. Treatment-on-treated estimates of the odds of diarrhea indicated larger program effects for participants who met more stringent verifications of participation. Diarrheal disease reduction in this long-term program was comparable with that seen in short-term randomized, controlled interventions, suggesting that household chlorination can be an effective long-term water treatment strategy.

- **Evaluation of the Impact of the Plastic BioSand Filter on Health and Drinking Water Quality in Rural Tamale, Ghana.** *Int. J. Environ. Res. Public Health, Oct 2012.* C Stauber. **(**Full text**)**
  A randomized controlled trial of the plastic Biosand filter (BSF) was performed in rural communities in Tamale (Ghana) to assess reductions in diarrheal disease and improvements in household drinking water quality. The plastic BSF achieved a geometric mean reduction of 97 percent and 67 percent for E. coli and turbidity, respectively. These results suggest the plastic BSF significantly improved drinking water quality and reduced diarrheal disease during the short trial in rural Tamale, Ghana. The results are similar to other trials of household drinking water treatment technologies.

- **Impact of Water-Vending Kiosks and Hygiene Education on Household Drinking Water Quality in Rural Ghana.** *Am J Trop Med Hyg, Feb 2013.* M Opryszko. (Abstract)
  Innovative solutions are essential to improving global access to potable water for nearly 1 billion people. This study presents an independent investigation of one alternative by examining for-profit water-vending kiosks, WaterHealth Centers (WHCs), in rural Ghana to determine their association with household drinking water quality. WHCs' design includes surface water treatment using filtration and ultraviolet light disinfection along with community-based hygiene education.

- **The Joint Effects of Efficacy and Compliance: A Study of Household Water Treatment Effectiveness Against Childhood Diarrhea**. *Water Research, March 2013.* S Kyle. (Full text)
  The effectiveness of household water treatment (HWT) at reducing diarrheal disease is related to the efficacy of the HWT method at removing pathogens, how people comply with HWT, and the relative contributions of other pathogen exposure routes. Although many HWT methods are efficacious at removing or inactivating pathogens, their effectiveness within actual communities is decreased by imperfect compliance. However, the quantitative relationship between compliance and effectiveness is poorly understood.

- **Microbiological Effectiveness of Mineral Pot Filters in Cambodia**. *Environ. Sci. Technol, Oct 2012*. J Brown. (Full text, free download but registration is required)
  Mineral Pot Filters (MPFs) are household water treatment devices that are manufactured and distributed by the private sector, with millions of users in Southeast Asia. Their effectiveness in reducing waterborne microbes has not been previously investigated. The authors purchased three types of MPFs available on the Cambodian market for systematic evaluation of bacteria, virus, and protozoan surrogate microbial reduction in laboratory challenge experiments following WHO recommended performance testing protocols. Results suggest that these commercially available filters may be at least as effective against waterborne pathogens as other, locally available treatment options such as ceramic pot filters or boiling.

WEBSITES/OTHER RESOURCES

- **Biosand Filters Knowledge Base website** - (Website)
  This newly launched website is managed by the Centre for Affordable Water and Sanitation Technology. Contributions are made by Biosand filter implementers worldwide.

- **International Network on Household Water Treatment and Safe Storage** – (Website)
  This is the communications portal for the International Network on Household Water Treatment and Safe Storage. This website provides a brief overview of the network, its newsletter and other recent communications, event updates, and information about the thematic working groups.

- **USAID Advancing Water Supply, Sanitation and Hygiene** – (Website)
  USAID's investments in water supply and sanitation respond to the urgent need to safeguard water resources for the well-being of both people and the environment.

- **USAID WASHplus Household Drinking Water Quality Updates** – (Website)
  This news feed from the USAID WASHplus project features recent research and news on household drinking water quality in developing countries. Its purpose is to create awareness and promote interest in household drinking water quality.

- Sept. 14, 2012 - WASHplus Weekly: Focus on Household Water Treatment & Safe Storage

- Feb. 3, 2012 - WASHplus Weekly: Year in Review, Household Water Treatment & Safe Storage (HWTS)

- July 1, 2011 - WASHplus Weekly: Focus on Household Water Treatment and Safe Storage

Each WASHplus Weekly highlights topics such as Urban WASH, Indoor Air Pollution, Innovation, Household Water Treatment and Storage, Hand Washing, Integration, and more. If you would like to feature your organization's materials in upcoming issues, please send them to Dan Campbell, WASHplus knowledge resources specialist, at dacampbell@fhi360.org.

USAID
FROM THE AMERICAN PEOPLE

About WASHplus - WASHplus, a five-year project funded through USAID's Bureau for Global Health, creates supportive

Please let WASHplus know at any time if you have resources to share

environments for healthy households and communities by delivering high-impact interventions in water, sanitation, hygiene (WASH) and indoor air pollution (IAP). WASHplus uses proven, at-scale interventions to reduce diarrheal diseases and acute respiratory infections, the two top killers of children under five years of age globally. For information, visit www.washplus.org or email: contact@washplus.org.

for future issues of WASHplus Weekly or if you have suggestions for future topics. An archive of past Weekly issues is available on the WASHplus website.