Issue 37 January 6, 2012 | Focus on WASH and IAP Technologies

This issue of the *WASHplus Weekly* contains recent studies and manuals that review water, sanitation, and hygiene (WASH) and indoor air pollution (IAP) prevention technologies. For WASH, these include a useful WASHTech review of technologies used in Africa, GIZ technology reviews of constructed wetlands and biogas, a new PATH ceramic filter, among others. For IAP, *PCIA Bulletins* provide overviews of solar cookers and biogas, studies from Malawi and Nepal, and other resources. Please contact WASHplus if you have additional information on this topic or to suggest topics for future issues of the *Weekly.*

WASH TECHNOLOGY REPORTS

- **Africa Wide Water, Sanitation and Hygiene Technology Review**, 2011. A Parker, WASHTech. (Full-text)
  This review focuses on technologies used in Africa in the WASH sector and explores how technologies have been developed, how they were introduced, whether they have gone to scale, and the reasons why they were successful or not. The review also discusses technologies from their first introduction to their ultimate scale up.

- **New Ceramic Water Pot Design**, 2011. PATH. (Full-text)
  This fact sheet describes PATH's work on a new ceramic water pot designed to filter water for consumers in low-resource settings.

- **Safe Drinking-water from Desalination**, 2011. World Health Organization. (Full-text)
  Desalination is increasingly being used to provide drinking water under conditions of freshwater scarcity. This document introduces the concept of water safety plans for desalination systems, provides an overview of potential hazards in source water, and describes microbial and chemical risks and other key issues associated with treatment, remineralization, storage, and distribution.

- **Sanitation Technology Options**, 2011. South Africa Department of Water Affairs and Forestry. (Full-text)

This document discusses the various technical options that meet the requirements for the provision of basic sanitation and the operational and maintenance requirements of each of these options. A brief technology choice guide is also provided.

- **Sanitation Ventures Literature Review: On-site Sanitation Waste Characteristics**, 2010. London School of Hygiene & Tropical Medicine. (Full-text)
  This report provides a thorough discussion of on-site sanitation systems and their efficiency in treating and disposing of human wastes. It also serves to highlight how little information is available in the scientific literature concerning the composition of human feces.

- **Smart Disinfection Solutions: Examples of Small-scale Disinfection Products for Safe Drinking Water**, 2010. D Bouman, KIT Publishers. (Full-text)
  Presently, chlorination of water in urban schemes and boiling of water at home are the most common methods of drinking water disinfection. But chlorination has an impact on taste and can be harmful in the longer term. Boiling requires a lot of scarce energy (wood, charcoal, gas, electricity). This booklet provides a number of alternative methods, which can be used on a family, community, or village scale.

- **Technology Notes**, *no date*. WaterAid. (Full-text)
  The purpose of these notes is to give an outline of the technologies used by WaterAid on long-term development projects in Africa and Asia, and to show alternatives that might be appropriate in different circumstances.

- **Technology Review of Biogas Sanitation for Blackwater, Brown Water or for Excreta and Organic Household Waste Treatment and Reuse in Developing Countries**, 2010. H Mang, GIZ. (Full-text)
  Anaerobic treatment units as part of an on-site decentralized or semi-decentralized wastewater treatment system are an alternative to centralized wastewater treatment systems due to their energy and soil conditioner production capacity, low-tech components, and adaptability. It is also an excellent technology for organic sludge treatment collected from septic tanks, holding tanks, dry toilets, settlers, or from aerobic wastewater treatment systems.

- **Technology Review of Constructed Wetlands—Subsurface Flow Constructed Wetlands for Greywater and Domestic Wastewater Treatment**, 2011. H Hoffman, GIZ. (Full-text)
  This booklet focuses on treating domestic/municipal wastewater or grey water using subsurface flow-constructed wetlands with coarse sand as a filter medium. The emphasis is on the application in developing countries and countries in transition. In the publication, an overview and basic guidance is provided on the design and maintenance of horizontal flow beds, vertical flow beds, and the "French System."

- **Technology Review of Urine Diversion Dehydration Toilets (UDDTs**), 2011. C

Rieck, GIZ. (Full-text)
This publication deals in detail with one particular dry excreta management system that has only recently become more widely known as the urine diversion dehydration toilet (UDDT). A complete overview is given on functions, designs, operation and maintenance issues, and costs of UDDTs.

- **Technologies for Climate Change Adaptation: The Water Sector***, 2011.* M Elliott, UNEP Risoe Centre. (Full-text)
  This guidebook aims to provide expert information on the technologies most relevant for climate change adaptation in the water sector in developing countries. It is meant to be a practical tool for use by a broad range of stakeholders, including those in governmental agencies, water utilities, community water boards, nongovernmental organizations, and private sector companies.

- **WASH Technology Information Packages (TIPs) for UNICEF WASH Programme and Supply Personnel***,* 2010. E Baumann, UNICEF. (Full-text)
  The TIPs focus on the following WASH technologies: hand pumps for drinking water, boreholes and drilling equipment for rural water supply, solar-powered pumping, motorized and small piped systems, and fecal sludge emptying equipment.

WASH TECHNOLOGY WEBSITES

- **Akvo Sanitation Portal**- (Link to website)
  This portal describes sanitation technologies that can be applied from the household level to the village level.

- **Akvo Water Portal** - (Link to website)
  The water portal illustrates a selection of smart water technologies and contains explanations on how to implement these technologies.

- **Enabling Technologies for Handwashing with Soap Database. Water and Sanitation Program**. (Link to website)
  An enabling technology is an external or environmental factor that influences an individual's opportunity to perform a behavior, regardless of their ability and motivation to act. The purpose of this database is to provide practitioners with information on the various types of enabling technologies, including but not limited to purpose, benefits, key product features, and specifications, pictures or illustrations, and contacts for further information.

- **A Guide to Relevant WatSan/WASH Technologies for Peace Corps Volunteers in East Africa.** (Link to website)
  This website is an initiative by Peace Corps Volunteer Chris Turnbull-Grimes and covers technologies relevant to the household and beyond, including those applicable to schools and agriculture, and potential sources of funding.

- **WASH Technology,** IRC. (Link to website)
  News on water supply, sanitation, and hygiene technologies for the developing world.

INDOOR AIR POLLUTION/HOUSEHOLD ENERGY TECHNOLOGIES

- **Adoption and Sustained Use of Improved Cookstoves**, *Energy Policy 39 (2011)*. I Ruiz-Mercado, University of California Berkeley. (Full-text)
  To better understand the stove adoption process and assess the impacts of introducing a new stove it is necessary to examine the relative advantages of each device in terms of the main cooking practices and available fuels.

- **Biogas**, *PCIA Bulletin, September 2011*. Partnership for Clean Indoor Air. (Full-text)
  This issue provides information from programs with experience promoting biogas stoves and fuel in Africa, Asia, and Latin America at the household, community, national, and regional levels. It gives an overview of biogas basics and its added benefits, and provides strategies for partnership-building, education/training, and innovative solutions to financing.

- **Biomass Cookstoves Technical Meeting: Summary Report**, 2011. U.S. Dept. of Energy. (Full-text)
  The U.S. Department of Energy's (DOE's) offices of Policy and International Affairs and Energy Efficiency and Renewable Energy held a meeting on January 11–12, 2011, to gather input on a proposed DOE research and development program to address the technical barriers to cleaner and more fuel-efficient biomass cookstoves. The nearly 80 participants at the meeting evaluated DOE's proposed goals, identified the major research challenges, and defined pathways toward technology solutions.

- **Charcoal and Briquettes**, *PCIA Bulletin, December 2011*. (Full-text)
  This issue provides examples of the use of briquettes as a sustainable alternative to charcoal in Africa, Asia, and Latin America, and provides insight into the future of charcoal stoves with inputs from leading stove testers and developers.

- **Does Cooking Technology Matter? Fuelwood Use and Efficiency of Different Cooking Technologies in Lilongwe District, Malawi**, 2011. M Memory, University of Pretoria. (Full-text)
  This study compared the performance, cooking time, and fuelwood usage of the three-stone fireplace, Rocket, and Chitetezo cooking technologies. It measures the amount of wood used per kg of food. The Rocket stove was found to take less time, use less fuelwood, and produce less smoke.

- **Good Technologies: But Do They Really Work?** *Boiling Point, August 2010*. E Bates, Practical Action. (Full-text)
  This edition covers a range of energy technologies and looks at what has made them successful and used by people in Africa, Asia, and Latin America. It also includes a

discussion of the factors that make technology successful—social, economic, marketing, environmental, and political.

- **Inventory of Innovative Indoor Smoke Alleviating Technologies in Nepal**, 2009. Practical Action. (Full-text)
  This report is a compilation of information on innovative technologies that significantly reduce IAP using resources easily available in Nepal's local markets. It serves as a reference for practitioners, researchers, academicians, private promoters, and consumers to access general information on various technologies.

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.

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