



Supportive Environments for Healthy Communities

### Issue 6 April 29, 2011 | Focus on the Integration of IAQ/WASH and Schools

This *WASHplus Update* provides links to information about the integration of indoor air quality (IAQ) and water, sanitation and hygiene (WASH) and schools. IAQ is an important issue for urban and rural schools in developing countries but it was difficult to find up-to-date information. US studies show that school IAQ affects student performance and that less than 50% of US schools meet IAQ standards. In developing countries, classroom IAQ in urban and peri-urban areas is also affected by traffic and surrounding industries. In rural school districts in Uganda, thousands of meals are cooked each day using wood fuel and this has negative environmental impacts and health impacts on the cooks. The last section of this *Update* provides links to resources on the integration of WASH and schools.

#### INDOOR AIR QUALITY (IAQ) - ARTICLES & REPORTS

- **Association between Substandard Classroom Ventilation Rates and Students' Academic Achievement**, IN: *Indoor Air*. 2011 Apr;21(2):121-31. ([Link to abstract](#))  
The results of this study suggest that increasing the ventilation rates toward recommended guideline ventilation rates in classrooms should translate into improved academic achievement of students.
- **Indoor Air Quality in Selected Samples of Primary Schools in Kuala Terengganu, Malaysia**, IN: *Environment Asia 3 (special issue) (2010) 103-108* ([Link to full-text](#)) Studies have found that indoor air quality effects children especially. Failure to identify and establish indoor air pollution programs can increase the chance of long-term and short-term health problems of students and staff, reduce the productivity of teachers and degrade the students' learning environment and comfort.
- **Indoor Air Quality Tools for Schools Communications Guide**, n.d. EPA. ([Link to full-text](#)) This manual offers ideas and resources for developing and carrying out activities that communicate the benefits of participating in an indoor air quality (IAQ) management program.

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The results of this study suggest that increasing the ventilation rates toward recommended guideline ventilation rates in classrooms should translate into improved academic achievement of students.
- **School Policies and Practices that Improve Indoor Air Quality**, IN: *J Sch Health*. 2010 Jun; 80(6):280-6. ([Link to abstract](#)) These findings suggest that schools with a formal indoor air quality programs are more likely to support policies and engage in practices that promote superior indoor air quality.
- **Study of Personal-Indoor-Ambient Fine Particulate Matters among School Communities in Mixed Urban-Industrial Environment in India**, IN: *Environ Monit Assess*. 2010 Jun;165(1-4):365-75 ([Link to abstract](#)) The present study is focused on the relationship of school community personal exposure of respirable particulate matter (RPM) with its indoor and ambient outdoor component.
- **Ugandan Biomass Project**, 2011. Charcoal Project. ([Link to blog post](#)) For Henry Twinemasiko, the school director, providing the woodfuel necessary to cook 1,850 meals each day is a big, costly challenge that jeopardizes the health of cooks, the local environment, and ultimately, his ability to deliver a good education to his students.

## WATER, SANITATION AND HYGIENE (WASH) - ARTICLES AND REPORTS

- **What is the Impact of Separate Toilets for Girls at Schools on Girls' Educational Outcomes? A Systematic Review of the Evidence**, 2011. MARCH Centre at LSHTM and EPPI-Centre. ([Link to full-text](#)) This is the first review to help verify whether WASH conditions contribute to girls' educational outcomes. A systematic literature review was conducted to determine what impact the provision of separate toilets for girls has on their primary and secondary school enrolment, attendance and completion.
- **Assessing the Sustainability & Effectiveness of School WASH Projects: a Toolkit**, 2010. Center for Global Safe Water at Emory University. ([Link to full-text](#)) This toolkit is meant to strengthen sector-wide monitoring and evaluation of school WASH programs in order to improve programmatic effectiveness and sustainability.
- **Effects of Hand Hygiene Campaigns on Incidence of Laboratory-confirmed Influenza and Absenteeism in Schoolchildren, Cairo, Egypt**, IN: *Emerg Infect Dis*. 2011 Apr;17(4):619-25. ([Link to full-text](#)) To evaluate the effectiveness of an intensive hand hygiene campaign on reducing absenteeism caused by influenza-like illness (ILI), diarrhea, conjunctivitis, and laboratory-confirmed influenza, a randomized control trial was conducted in 60 elementary schools in Cairo, Egypt.

- **A Manual for WASH Activities in Elementary School Clubs**, 2010. Live & Learn ([Link to full-text](#)) The WASH Activities book has been developed for Eritrean elementary schools to provide a set of hygiene related information and club activities around Water, Sanitation and Hygiene wellbeing for students and their families.
- **Non-sexual Transmission of Trichomonas vaginalis in Adolescent Girls Attending School in Ndola, Zambia**, IN: *PLoS One*. 2011 Jan 31;6(1):e16310. ([Link to full-text](#)) The high prevalence of trichomoniasis in Ndola is due to non-sexual transmission of trichomoniasis via shared bathing water and inconsistent use of soap.
- **School environment and sanitation in rural India**, IN: *J Glob Infect Dis*. 2010 May;2(2):109-11. ([Link to full-text](#)) A school child educated about the benefits of sanitation and good hygiene behavior is a conduit for carrying those messages far beyond the school walls, bringing lasting improvement to community hygienic practices.
- **School Led Total Sanitation: Principles and Practices**, 2010. K. Adhikari. ([Link to full-text](#)) The school led total sanitation program emphasizes the complete elimination of open defecation from the catchments of the schools as a prerequisite for improving hygiene and sanitation. It aims to ensure communities' self-realization of hygiene and sanitation through sensitization.
- **Strengthening Water, Sanitation and Hygiene in Schools: A WASH Guidance Manual with a Focus on South Asia**, 2010. IRC. ([Link to full-text](#)) This book is meant for managers and trainers involved in water, sanitation and hygiene programs in schools, whether operating at state, district or block level.

#### **WATER, SANITATION AND HYGIENE (WASH) - VIDEOS/WEBSITES**

- **India – Rainwater Harvesting for Schools**– ([Link to website](#)) Provides case studies, manuals and other information for planning school rainwater harvesting systems.
- **IRC WASH in Schools**– ([Link to website](#)) This website aims to be a place for sharing information on Water, Sanitation and Hygiene (WASH) in schools.
- **IRC/UNICEF Online Debate on WASH in Schools**– ([Link to website](#)) From 7 April to 6 May 2011 IRC and UNICEF are organizing a web-based debate on WASH in schools.
- **Sanitary Napkin Production Training in India** – ([Link to video](#)) After studying various problems of hygiene, sanitation and ecological sanitation, SCOPE designed and constructed Sanitary Napkin Incinerators in various schools.

- **School Sanitation - a Common Challenge in Kenya** – ([Link to video](#)) This video shows the state of toilets and their negative influence on the hygiene situation and learning conditions in schools.
- **SWASH+** - ([Link to website](#)) This initiative has projects in Central America and Kenya. Members include CARE, Catholic Relief Services, Water.org and others.

*WASHplus Updates* will highlight topics such as Urban WASH, Indoor Air Quality, Innovation, Household Water Treatment and Storage, Handwashing, 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@aed.org](mailto:dacampbell@aed.org).



**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 quality (IAQ). 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](http://www.washplus.org) or contact: [washplus@aed.org](mailto:washplus@aed.org).

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