

# **Journal of Water, Sanitation and Hygiene for Development**

A Journal of the International Water Association

volume 10 | issue 4 | December 2020

## **Contents**

### **WASH Economics and Financing: towards a better understanding of costs and benefits**

- 615 Editorial: WASH Economics and Financing: towards a better understanding of costs and benefits  
**Britta Augsburg and Tristano Sainati**

#### **Research Paper**

- 618 Interaction of village and school latrines on educational outcomes in India  
**Jennifer Orgill-Meyer**

#### **Research Paper**

- 628 Sanitation dynamics: toilet acquisition and its economic and social implications in rural and urban contexts  
**Britta Augsburg and Paul Rodríguez-Lesmes**

#### **Research Paper**

- 642 Understanding the costs of urban sanitation: towards a standard costing model  
**Tristano Sainati, Fiona Zakaria, Giorgio Locatelli, P. Andrew Sleight and Barbara Evans**

#### **Research Paper**

- 659 Life-cycle costs approach for private piped water service delivery: a study in rural Viet Nam  
**Melita Grant, Tim Foster, Dao Van Dinh, Juliet Willetts and Georgia Davis**

#### **Research Paper**

- 670 An assessment of penetration for pay-to-fetch water kiosks in rural Ghana using the Huff gravity model  
**Philip T. Deal and David A. Sabatini**

#### **Research Paper**

- 680 Understanding water demand and usage in Mandalay city, Myanmar as a basis for resetting tariffs  
**Tanvi Nagpal, Henry Rawlings and Maël Balac**

#### **Research Paper**

- 691 Unpacking piped water consumption subsidies: Who benefits? New evidence from 10 countries  
**Laura Abramovsky, Luis Andrés, George Joseph, Juan Pablo Rud, Germán Sember and Michael Thibert**



**Research Paper**

- 716 Does payment by results work? Lessons from a multi-country WASH programme  
**Guy Howard and Zach White**

**Research Paper**

- 724 Benefits and costs of rural sanitation interventions in Ghana  
**Mark Radin, Brad Wong, Catherine McManus, Saumitra Sinha, Marc Jeuland, Eugene Larbi, Benedict Tuffuor, Noble Kofi Biscoff and Dale Whittington**

**Research Paper**

- 744 Expanding safe fecal sludge management in Kisumu, Kenya: an experimental comparison of latrine pit-emptying services  
**Rachel Peletz, Andy Feng, Clara MacLeod, Dianne Vernon, Tim Wang, Joan Kones, Caroline Delaire, Salim Haji and Ranjiv Khush**

**Research Paper**

- 756 Users are willing to pay for sanitation, but not as much as they say: empirical results and methodological comparisons of willingness to pay for peri-urban sanitation in Lusaka, Zambia using contingent valuation, discrete choice experiments, and hedonic pricing  
**James B. Tidwell**

**End of special issue****Review Paper**

- 768 Review of frameworks and tools for urban strategic sanitation planning: considering technology innovations and sustainability  
**Dorothee Spuhler and Christoph Lüthi**

**Review Paper**

- 786 Multiple and complex links between babyWASH and stunting: an evidence synthesis  
**Amy Waller, Monica Lakhnpaul, Samuel Godfrey and Priti Parikh**

**Review Paper**

- 806 Temporal analysis of water, sanitation, and hygiene data from knowledge, attitudes, and practices surveys in the protracted humanitarian crisis in Myanmar  
**Marta Domini, Sunny Guidotti and Daniele Lantagne**

**Review Paper**

- 818 WASH and Gender: a critical review of the literature and implications for gender-transformative WASH research  
**Jess MacArthur, Naomi Carrard and Juliet Willetts**

**Research Paper**

- 828 '*Solar septic tank*': evaluation of innovative decentralized treatment of blackwater in developing countries  
**Thammarat Koottatep, Stephanie Connelly, Tatchai Pussayanavin, Sopida Khamyai, Wattanapong Sangchun, William Sloan and Chongrak Polprasert**

**Research Paper**

- 841 Myth and reality of community ownership and control of community-managed piped water systems in Ghana

**Nicholas Fielmua**

**Research Paper**

- 851 Predictors of hand hygiene behaviours among primary and secondary school children in a rural district setting in Zimbabwe: a cross-sectional epidemiologic study

**France Ncube, Artwell Kanda, Maude Chahwanda, Margaret Macherera and Bigboy Ngwenya**

**Research Paper**

- 862 Comparative life cycle assessment of four commonly used point-of-use water treatment technologies

**Tara Walsh and Jonathan Mellor**

**Research Paper**

- 874 Performance evaluation of anoxic–oxic–anoxic processes in illuminated biofilm reactor (AOA-IBR) treating septic tank effluent

**Sittikorn Kamngam, Thammarat Koottatep, Nawatch Surinkul, Chawalit Chaiwong and Chongrak Polprasert**

**Research Paper**

- 885 Chlorine disinfection against *Legionella pneumophila* biofilms

**Abdelwahid Assaidi, Mostafa Ellouali, Hassan Latrache, Hafida Zahir, Abdelaziz Karoumi and El Mostafa Mliji**

**Research Paper**

- 894 Estimating averting expenditure in domestic water use: evidence from Ghana

**Anthony Amoah**

**Research Paper**

- 905 Septage composition and pollution fluxes from cesspits in Palestine

**Belal Amous, Nidal Mahmoud, Peter van der Steen and Piet N. L. Lens**

**Research Paper**

- 916 Improving the hydrological performance of a rainwater for drinking (RFD) system at a rural hospital in Vietnam

**Gippeum Bak, Anh Dzung Dao and Mooyoung Han**

**Research Paper**

- 927 On-site sanitation density and groundwater quality: evidence from remote sensing and *in situ* observations in the Thiaroye aquifer, Senegal

**Mor Talla Diaw, Seynabou Cissé-Faye, Cheikh Becaye Gaye, Seydou Niang, Abdoulaye Pouye, Luiza C. Campos and Richard G. Taylor**

**Research Paper**

- 940 Impact of community health promoters on awareness of a rural social marketing program, purchase and use of health products, and disease risk, Kenya, 2014–2016  
**Sunkyung Kim, Mark Laughlin, Jamae Morris, Ronald Otieno, Aloyce Odhiambo, Jared Oremo, Jay Graham, Mitsuaki Hirai, Emma Wells, Colin Basler, Anna Okello, Almea Matanock, Alie Eleveld and Robert Quick**

**Research Paper**

- 951 Water, sanitation, and hygiene (WASH) conditions and prevalence of office visits due to anemia: a regional-level analysis from Peru  
**Benoit Mougenot, Elard Amaya and Percy Herrera-Añazco**

**Research Paper**

- 959 When is shared sanitation acceptable in low-income urban settlements? A user perspective on shared sanitation quality in Kumasi, Kisumu and Dhaka  
**Vasco Schelbert, Dario Meili, Mahbub-Ul Alam, Sheillah Simiyu, Prince Antwi-Agyei, Kwaku Amaning Adjei, Bismark Dwumfour-Asare, Mahbubur Rahman, Sharika Ferdous, Supta Sarker, Isabel Günther and Christoph Lüthi**

**Research Paper**

- 969 Longitudinal study of microbial load of drinking water and seasonal variation of water quality at the point of use in food establishments of Addis Ababa, Ethiopia  
**Aderajew Mekonnen Girmay, Sirak Robele Gari, Azage Gebreyohannes Gebremariam, Bezatu Mengistie Alemu, Martin R. Evans and Gebreab Teklebirhan Gessew**

**Research Paper**

- 979 Immediate influences of hygiene education sessions on handwashing behaviors of selected Nepali students  
**Govinda Prasad Devkota, Sheri Bastien, Petter D. Jenssen, Manoj K. Pandey, Bhimsen Devkota and Shyam Krishna Maharjan**

**Research Paper**

- 986 Backpack use as an alternative water transport method in Kisumu, Kenya  
**Sunkyung Kim, Kathryn Curran, Li Deng, Aloyce Odhiambo, Jared Oremo, Ronald Otieno, Richard Omore, Thomas Handzel and Robert Quick**

**Research Paper**

- 996 Reconfiguring urban waterscape: water kiosks in Delhi as a new governance model  
**Uma Dey Sarkar and Bikramaditya K. Choudhary**

**Practical Paper**

- 1012 Implementation of point-of-use water treatment methods in a rural Tanzanian community: a case study  
**T. M. Ngasala, S. J. Masten, C. Cohen, D. Ravitz and E. J. Mwita**

**Short Communication**

- 1019 Fertilizer effect of composted sewage sludge and cattle manure on *Pelargonium* growth  
**Nesrine Dridi, Lilia Romdhane, Renata Ferreira and Noomene Sleimi**

**Short Communication**

- 1026 Use of group maturity index to measure growth, performance, and sustainability of community health clubs in urban water, sanitation and hygiene (WASH) program in Zimbabwe

**Mitsuaki Hirai, Arnold Cole, Moreblessing Munyaka, Steven Mudhuviwa, Taurai Maja and Aidan Cronin**

**Discussion Paper**

- 1034 Impact of alum pretreatment on biosand filter performance: a commentary on Curry *et al.* (2020)

**Caetano C. Dorea**

**Discussion Paper**

- 1036 Impact of alum pretreatment on biosand filter performance: reply to Dorea's commentary on Curry *et al.* (2020) article

**Kevin D. Curry and Christopher P. Bloch**

**In Memoriam**

- 1037 The H in WASH: a reflection on the contribution, style and legacy of Professor Val Curtis

**O. Cumming, G. Howard, P. Kolsky, S. P. Luby, R. Chilengi, J. M. Colford Jr., P. Iyer, S. Cairncross and B. E. Evans**

