



Issue 182 | March 13, 2015 | Focus on Urban Wastewater

A growing urban population and the increasing scarcity of good quality water resources are two of the driving forces behind the accelerating upward trend in the use of wastewater for agriculture and aquaculture. Wastewater can be reused to augment scarce supplies and delay future investments in water supply infrastructure. A UN brief states that wastewater reuse should be seen as a critical component of water demand management plans when implemented together with health and environmental risk management.

IN THE NEWS

Ebola-Infected Sewage May Require Longer Holding Period. *University Herald*, Mar 2015. [News link](#) | [Journal article link](#) |

Storing Ebola-infected sewage for a week at 86° Fahrenheit or higher should allow enough time for more than 99.99 percent of the virus to die, though lower ambient temperatures may require a longer holding period, according to a recent study from George State University

REPORTS/ARTICLES/VIDEOS

Wastewater Management – A UN-Water Analytical Brief, 2015. United Nations. [Link](#)

This report looks at some of the problems caused by the neglect of wastewater management, but also at the benefits and opportunities that can be realized through proper attention to this area, and highlights why it is crucial that wastewater management and water quality stop being the “poor relations” and receive attention in their own right.

Guidelines for the Safe Use of Wastewater, Excreta, and Greywater, 2006. World Health Organization (WHO).

In 2006, WHO published a third edition of its Guidelines for the Safe Use of Wastewater, Excreta, and Greywater in agriculture and aquaculture. In four volumes, these guidelines propose a flexible approach of risk assessment and risk management linked to health-based targets that can be established at a level that is realistic under local conditions. The approach is backed up by strict monitoring measures. The guidelines are presented in four separate volumes:

- [Volume 1: Policy and Regulatory Aspects](#)
- [Volume 2: Wastewater Use in Agriculture](#)
- [Volume 3: Wastewater and Excreta Use in Aquaculture](#)
- [Volume 4: Excreta and Greywater Use in Agriculture](#)

Using Wastewater in Urban Agriculture: Risky Behaviour? 2015. P Antwi-Agyei, SHARE. | [Summary](#) | [Video](#) | [Presentation](#)

The video and presentation discuss wastewater use in urban agriculture in Accra, Ghana, and documents some of the key pathways through which fecal pathogens are transmitted to farmers using wastewater for irrigation, and to consumers of wastewater-irrigated salad produced during the “farm-to-fork” food chain.

Drainage Systems: An Occluded Source of Sanitation Related Outbreaks. *Archives of Public Health*, 73(8) (2015). K Blom. [Link](#)

Drainage systems and its role in sanitation related outbreaks are evident but still occluded once it has been installed. This current review evaluates if drainage systems can cause infections and thus be of clinical concern. Drainage systems and its maintenance, if neglected, could pose a threat in both community and healthcare causing infections as well as emergence of multi-resistant bacteria that could cause unpredictable clinical manifestations.

A Global Indicator of Wastewater Treatment to Inform the Sustainable Development Goals (SDGs). *Environmental Science and Policy*, Apr 2015. O Malik. [Abstract/order info](#)

A first-ever indicator of global wastewater treatment performance was developed. Results show wastewater treatment varies by region and wealth and that challenges exist for UN negotiators to incorporate an SDG for wastewater treatment.

Effects of 100 Years of Wastewater Irrigation on Resistance Genes, Class 1 Integrons and IncP-1 Plasmids in Mexican Soil. *Frontiers in Microbiology*, Mar 2015. S Jechalk. [Link](#)

Long-term irrigation with untreated wastewater can lead to an accumulation of antibiotic substances and antibiotic resistance genes in soil. However, little is known so far about effects of wastewater, applied for decades, on the abundance of IncP-1 plasmids and class 1 integrons which may contribute to the accumulation and spread of resistance genes in the environment, and their correlation with heavy metal concentrations.

Health Risk Assessment Along the Wastewater and Faecal Sludge Management and Reuse Chain of Kampala, Uganda: A Visualization. *Geospatial Health* 9(1) 2014. S Fuhrmann. [Link](#)

This study gives an assessment of health risks along the major wastewater channel in Kampala, Uganda. It can serve as a case study for a step-by-step implementation of risk assessment and management as described in WHO’s 2006 guidelines for the safe use of wastewater, greywater, and excreta (see above).

An Urban Wastewater Solution: African Vetiver Grass, 2015. P Nutakor. [Link](#)

The project is assessing the potential of an African vetiver grass species, *Chrysopogon nigritana*, in treating industrial effluents and wastewater from domestic origins, which have been major sources of contamination. In Africa, wastewater is increasingly becoming an important resource for various uses, including irrigation in urban and peri-urban agriculture. This wastewater is often high in toxic heavy metals such as arsenic, cadmium, and manganese as well as components of nutrient pollution such as phosphates and nitrates.

Use of Duckweed in Wastewater Treatment. *International Journal of Innovative Research in Science, Engineering and Technology*, June 2014 . E Chaudhary. [Link](#)

This paper discusses the use of duckweed plants in purifying water and waste. They are

functionally simple, yet easy to maintain; and they can provide tertiary treatment performance equal or superior to conventional wastewater treatment systems now recommended for large scale operation.

Urban Agriculture on the Rise, 2014. R Jordan. [Link](#)

According to this study, water usage by urban farms is not just a water recycling opportunity, it also can potentially become a food safety concern. For example, while irrigation allows consumers to get vegetables in the dry (lean) season, it also potentially exposes them to pathogens that can be present in the poorly treated water. But the researchers said the food safety issues, while important, can be addressed to maintain the many valuable and underappreciated contributions of urban farms.

Addressing Water Stress through Wastewater Reuse: Complexities and Challenges in Bangalore, India, 2014. P Jamwal. [Link](#)

This study examines the challenges associated with adapting wastewater reuse as a means of mitigating water stress in a rapidly growing urban center using the Vrishabhavathy River in Bangalore, India, as a case in point. It concludes that realizing the potential of wastewater reuse in Bangalore will require techno-institutional integration and thinking at a basin scale.

The Role of Bacteria in the Breakdown of Carcinogenic Substances (PCBs) in Wastewater for Safe Recycling Purposes – A Review. *International Journal of Environment and Sustainability*, 3(3) 2014. S Mathews. [Link](#)

Biodegradation is the metabolic ability of microorganisms to transform or mineralize organic contaminants into less harmful, non-hazardous substances, which are then integrated into natural biochemical cycles. This process is not only cost effective, but it is also environmentally friendly.

Wastewater Usage in Urban and Peri-Urban Agricultural Production Systems: Scenarios from India, 2014. PJ Vazhacharickal. [Link](#)

Based on primary and secondary data, this paper attempts to confirm that urban and peri-urban agriculture is one of the best options to address increasing urban food demand and can serve to complement rural supply chains and reduce the ecological food print in India.

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