# Experiences on the implementation of a pilot grey water treatment and reuse based system at a household in the slum of Kyebando-Kisalosalo, Kampala

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## Abstract

Grey water constitutes the largest fraction of domestic wastewater. It causes environmental sanitation and pollution problems if it is not managed well. If treated, grey water can be a resource for a variety of uses. A pilot system was constructed in February 2013 to treat grey water from a fourmember household for sub-surface irrigation of local vegetables. A hydraulic loading rate (HLR) of 60 L $m^{-2}$ $d^{-1}$ and an organic loading rate (OLR) of 519–1,580 g $BOD_5 m^{-2}$ $d^{-1}$ were implemented on a multi-media filter of gravel, charcoal, geotextile and mulch (charcoal being the predominant layer) operated as a batched type-system, with a 36-hour retention time. The system was operated for three months, during which it showed remarkable removal efficiencies of 90.8±5.4 and 96.1± 3.0% after 36 hours for COD and BOD, respectively, and 95±3.1% for faecal coliforms (FC). The removal efficiencies at 36 hours, of total nitrogen (TN), total phosphorus (Tot-P), total suspended solids (TSS) and total dissolved solids (TDS) were 39.0, 30.1, 85.2 and 78.6%, respectively. Plant response to subsurface irrigation with treated grey water was largely masked by rainy season and the effluent had a limited effect on the soil.

**Key words** | grey water, household, reuse, sub-surface irrigation, treatment