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Efficacy of waste stabilization ponds and constructed wetlands adopted for treating faecal sludge in Africa: a review

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Efficacy of waste stabilization ponds and constructed wetlands adopted for treating

faecal sludge in Africa: a review

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Abstract

The generation of faecal sludge (FS) in capitals and urban settings of African countries outpaces

the available storage, emptying, transportation and treatment technologies. The low technology-

based treatment systems for handling FS are preferable and widely adopted in the African

context due to their less associated investment and operation costs. The waste stabilization ponds

and constructed wetlands were principally developed as wastewater treatment systems however

they are widely adopted for treating FS in urban settings of Africa. Less information is known

about the efficiency of these systems in lowering FS pollutant concentrations to meet the design

specifications and the allowable discharge limits. This paper reviewed the technical efficacy of

waste stabilization ponds and the constructed wetlands in treating FS by evaluating the actual

treatment efficiency data against the design efficiencies and the maximum allowable discharge

limits. The review results revealed that these technologies are user-friendly although they fail to

lower the solids concentrations to meet the design and maximum allowable discharge limits. This

failure imposes extra costs on operation and maintenance due to the fast filling of solids in the

systems hence leading to short-circuiting issues. So, studies on the adequate dewatering

technologies of FS before entering the systems are needed.

Keywords

Faecal sludge (FS); Waste stabilization; Pondsconstructed wetlands