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Wastewater treatment performance efficiency of constructed wetlands in African countries: a review

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Abstract

In Africa, different studies have been conducted at different scales to evaluate wastewater treatment efficiency of constructed wetland. This paper aims to review the treatment performance efficiency of constructed wetland used in African countries. In the reviewed papers, the operational parameters, size and type of wetland used and the treatment efficiency are assessed. The results are organized and presented in six tables based on the type of wetland and wastewater used in the study. The results of the review papers indicated that most of the studies were conducted in Tanzania, Egypt and Kenya. In Kenya and Tanzania, different full-scale wetlands are widely used in treating wastewater. Among wetland type, horizontal subsurface flow wetlands were widely studied followed by surface flow and hybrid wetlands. Most of the reported hybrid wetlands were in Kenya. The results of the review papers indicated that wetlands are efficient in removing organic matter (biochemical oxygen demand and chemical oxygen demand) and suspended solids. On the other hand, nutrient removal efficiency appeared to be low.