

Comparative assessments on wastewater treatment technologies for potential of wastewater recycling

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ABSTRACT

Wastewater recycling plays an important role in minimizing water loss. The recycled wastewater can be utilized for many purposes from irrigation to portable water supply. Numbers of wastewater treatment system have been applied in Malaysia to achieve quality in meeting the intended purpose of wastewater recycling. Although there are many studies reported on the efficiency of the treatment technologies, comparative assessments including the significant purpose until the estimation of operational expenditure for each of the treatment technologies are lacking. Therefore, this brief review aims to critically discuss each of the treatment technologies from the secondary treatments, tertiary treatments, to the advanced treatments. Based on our review, the conventional activated sludge system has high potential for wastewater recycling due to lower cost in terms of population equivalent and shows great removal efficiency among secondary treatment while sand filtration and activated carbon is the better options for tertiary and advanced treatment. Therefore, it can be concluded that conventional activated sludge system, sand filtrations and activated carbon process is the most feasible in terms of removal performance and cost effectiveness for secondary, tertiary and advanced treatments.

Keywords: Wastewater recycling; Wastewater treatment technologies; Comparative assessment

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