

# Development of Bio-Sand Filter to Treat Waste Water Effluent

Caroline Marajan  
Nur Shazwani Muhammad  
Lungan Ega

## ABSTRACT

*Sand filtration has been used extensively for onsite and small community application to treat drinking water with numerous installations. The sand filtration is developed as an option to treat and utilize waste water effluent to reduce the usage of water from domestic water supply. In this research, a laboratory scale model of sand filter was developed using sand and gravel as filter media. Tests on physical and chemical parameters such as pH, colour, suspended solids, ammonia, biochemical oxygen demand (BOD), chemical oxygen demand (COD), zinc, and chromium have been carried out. The results obtained were used to analyse the effectiveness of sand filtration to improve the quality of waste water effluent. The quality of most treated waste water effluent parameters complies with the Standard B of Environmental Quality Act 1974 (EQA 1974). Additionally, the quality was also compared with drinking water standards to make sure that it is suitable for non potable applications. The results showed that the quality of waste water effluent after sand filtration complied with the World Health Organization (WHO) Standards, Malaysian Drinking Water Standards, and National River Water Quality Standard (INTERIM) that makes it suitable for variety of non potable uses.*

**Keywords:** *waste water effluent, sand filtration, waste water treatment, suspended solids, laboratory scale model*