The hydrological performance investigation of green roof

ABSTRACT

A green roof can be a way to navigate stormwater runoff and flooding in urban catchments in Malaysia. This is because green roofs can be used as temporary storage spaces and infiltration. This paper represents hydrological investigation findings in term of hydrograph and peak runoff for different types of materials used as drainage and filter layers. The data were collected from different test beds under simulated rainfall with the intensity of 200mm/h for 0%, 2% and 6% slope. Natural fibres were used as a filter layer and laid on top of the drainage layer. In this study, a total of 18 sets test beds with a dimension of 1.1 m x 1.17 m were used. This study used three types of waste materials (rubber crumbs, oil palm shells and polyfoam) and three types of natural fibres (coconut fibres, oil palm fibres and sugarcanes fibres). The result indicates that the combination of oil palm shells with sugarcanes fibres have the highest peak runoff value for 0%, 2% and 6% slope with a value of 4.01 mm, 6.29 mm and 7.77 mm respectively. Followed by oil palm shells with oil palm fibres (0%: 2.95 mm, 2%: 5.75 mm, 6%: 6.76 mm) and oil palm shell with coconut fibres (0%: 2.72 mm, 2%: 5.05 mm, 6%: 6.32 mm). The result proved that combination of oil palm shell and sugarcanes fibres performance better in peak runoff value compared to other materials