

Feasibility study of rainwater harvesting in Universiti Malaysia Sabah's residential colleges in support of the eco-Campus initiative

Abstract

This study highlights the findings from a preliminary feasibility investigation in proposing rainwater harvesting systems in Universiti Malaysia Sabah, in support of the Eco-Campus initiative. Since its inception on 7 th February 2013, the initiative strives to promote the blend of campus development and ecological sustainability. Hence, in line with this aspiration, rooftop rainwater harvesting (a form of green infrastructure) is introduced to selected residential colleges in the campus and assessed for its potential in supplying untreated water for non-consumptive activity as well as in reducing the water bill. For the purpose of rainwater tank design, the roof catchment area is needed to estimate the tank size, which then be multiplied with the average annual rainwater yield from the nearest rainfall gauging station. The percentage of water yield over rainwater demand is then calculated to estimate how much does the harvested rainwater could cater the water demand of the consumers. The water bill saving is calculated by multiplying the latest water tariff and the volume of the harvested rainwater, while the water demand is approximated by multiplying the number of users in the colleges with the average water use per person. The supply-demand assessment is performed to determine the potential impact of rainwater harvesting system installation in replacing paid, treated water for non-potable use in these premises. It is hoped by promoting green infrastructures in the campus to conserve natural resources as presented in this study aids the university in achieving its sustainable campus status by the year 2018.