Environmental Engineering and Management Journal

April 2025, Vol. 24, No. 4, 847-853
http://www.eemj.icpm.tuiasi.ro/; http://www.eemj.eu
http://doi.org/10.30638/eemj.2025.064

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FEASIBILITY OF ROOFTOP RAINWATER HARVESTING IN A UNIVERSITY CAMPUS IN TURKEY

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Abstract

Today, along with climate change, destruction of basin areas, and urbanization, rainwater that cannot complete its natural cycle causes drought, floods, and a decrease in the quality of water resources. Rainwater harvesting is essential in preventing these disasters and creating an auxiliary water source. It is expected that the harvesting systems to be installed will operate with high efficiency, especially in widely spread areas such as campuses and stadiums, due to the high water consumption and the high amount of precipitation falling on the area. In this study, the technical and economic analysis of the rainwater harvesting system planned to be established at Bursa Uludag University Gorukle Campus, located in the city of Bursa in the Marmara Region, the most developed region of Turkey, was carried out. As a result of the study, the rainwater harvesting system's total cost was calculated as 912999$. It has been determined that 19% of the campus's annual water consumption originating from staff and students can be met with the rainwater collection system. With this amount, a savings of 41770.53$ can be achieved in water consumption fees, and with this savings, the depreciation period of the system is approximately 22 years.

Key words: alternative water sources, campus, rainwater, sustainability

Received: April, 2024; Revised final: July, 2024; Accepted: September, 2024; Published in final edited form: April, 2025

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