

## Sustainability Analysis and Quality Assessment of Rainwater Harvested from Green Roofs: A Review

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**Abstract :** Most people today are aware that global Climate change, is not just a scientific theory but also a fact with worldwide consequences. Global climate change is due to rapid urbanization, industrialization, high population growth and current vulnerability of the climatic condition. Water is becoming scarce as a result of global climate change. To mitigate the problem arising due to global climate change and its drought effect, harvesting rainwater from green roofs, an environmentally-friendly and versatile technology, is becoming one of the best assessment criteria and gaining attention in Malaysia. This paper addresses the sustainability of green roofs and examines the quality of water harvested from green roofs in comparison to rainwater. The factors that affect the quality of such water, taking into account, for example, roofing materials, climatic conditions, the frequency of rainfall frequency and the first flush. A green roof was installed on the Humid Tropic Centre (HTC) is a place of the study on monitoring program for urban Stormwater Management Manual for Malaysia (MSMA), Eco-Hydrological Project in Kuala Lumpur, and the rainwater was harvested and evaluated on the basis of four parameters i.e., conductivity, dissolved oxygen (DO), pH and temperature. These parameters were found to fall between Class I and Class III of the Interim National Water Quality Standards (INWQS) and the Water Quality Index (WQI). Some preliminary treatment such as disinfection and filtration could likely to improve the value of these parameters to class I. This review paper clearly indicates that there is a need for more research to address other microbiological and chemical quality parameters to ensure that the harvested water is suitable for use potable water for domestic purposes. The change in all physical, chemical and microbiological parameters with respect to storage time will be a major focus of future studies in this field.

**Keywords :** Green roofs, INWQS, MSMA-SME, rainwater harvesting, water treatment, water quality parameter, WQI

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