

Water Quality Assessment of the UP Diliman Waterways and Environmental Valuation of UP Diliman Green Spaces and Waterways

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ABSTRACT

The University of the Philippines Diliman (UP Diliman) is a vital green space in the National Capital Region, offering significant ecological, recreational, and cultural benefits. However, increasing urbanization and anthropogenic pressures threaten its waterways and overall sustainability. This study aims to address this critical need by conducting a comprehensive assessment of the water quality of UP Diliman's waterways and evaluating the environmental value of its green spaces. The primary objectives are to analyze the spatiotemporal distribution of water quality parameters from 2021 to 2023, determine the overall water quality using a Water Quality Index (WQI), and estimate the environmental value of UP Diliman's green spaces and waterways using the Contingent Valuation Method (CVM). The methodology involves systematic data collection on key water quality parameters from designated monitoring points across the UP Diliman Lagoon and the National Science Complex Creek. Data analysis includes descriptive statistics, temporal trend analysis, and Principal Component Analysis (PCA) to identify key water quality indicators and their seasonal variations. For the environmental valuation, pre-tested survey questionnaires will be distributed to a stratified random sample of UP Diliman stakeholders, including students, faculty, staff, vendors, and visitors. The survey responses will be analyzed using the Probit regression model to identify the determinants of willingness to pay (WTP) and calculate the aggregate WTP, which will be used to estimate the overall environmental value of UP Diliman's green spaces and waterways. This research aims to provide significant insights into water quality management and offer evidence-based recommendations for sustainable conservation practices and policy development.