

**INSTITUTE OF ENVIRONMENTAL SCIENCE & METEOROLOGY**  
**College of Science**  
**UP Diliman, Quezon City**

**ANNOUNCEMENT OF THESIS PROPOSAL PRESENTATION**

of

**LUZALBE T. BRILLANTES**

**TREATABILITY ASSESSMENT OF WATER SOURCES FOR DRINKING IN SELECTED  
PHILIPPINE SITES USING MODIFIED DRINKING WATER QUALITY INDEX AND  
MULTIVARIATE STATISTICS**

for the degree of MS in Environmental Science

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**THESIS ADVISER**

**Mylene G. Cayetano, Ph. D.**  
Associate Professor  
Institute of Environmental Science  
& Meteorology  
College of Science  
University of the Philippines  
Diliman, Quezon City

**THESIS READER**

**Maricris T. Laciste, Ph. D.**  
Department Manager  
Water Quality Control Department  
Technical Regulation Area  
Metropolitan Waterworks and Sewerage  
System Regulatory Office  
Diliman, Quezon City

# **Treatability Assessment of Water Sources for Drinking in Selected Philippine Sites Using Modified Water Quality Index and Multivariate Statistics**

Luzalbe T. Brillantes

## **ABSTRACT**

Adequate supply of improved water sources would diminish water-borne illnesses and promote the environmental, social, and economic growth in communities. However, water sources such as freshwater ecosystems continue to deteriorate in quantity and quality due to pressures from anthropogenic activities, population growth and industrialization. In the Philippines, several regions have been identified as water critical which is amplified by seasonal variabilities and climate change.

Water quality is defined by a range of variables that expresses the suitability of water for various uses. Depending on the source, each use will have its own set of influences on water quality. International, regional, and local mandates have been put in place to set guidelines for water quality that are classified depending on source and fitness for consumption. However, there is no single measure that can describe overall water quality for any body of water and its appropriateness for a particular use that considers the intermediary process of treatment in the local setting.

This study aims to formulate a screening optimization tool through a drinking water quality index together with multivariate statistics for assessing source waters suitability for drinking water treatment. 5 sites will be evaluated based on (1) water quality monitoring data from 2018-2021 (2) source target values for pre- and post- treatment (nanofiltration, chlorination etc) and (3) expert surveys from water experts and Gravity Driven Membrane-WASH surveys from stakeholders. A scoring index will be developed based on the aggregation of all the metrics to classify whether water sources are excellent, good, fair, marginal, or poor. Determination of source water “treatability” will help decision-makers in choosing sites for sourcing drinking water, reduce operational costs for water operators and allow for the exploration of adaptation technologies in water-stressed regions.

**Keywords:** gravity-driven membrane-WASH, freshwater ecosystems, water quality, anthropogenic activities