



UNIVERSITY OF

NEGROS OCCIDENTAL–RECOLETOS, INCORPORATED

Bacolod City

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Institutional Water Sustainability Report: An Evaluation of Water Resource Management and Development Pathways

Prepared by: Sustainability Office, Bacolod City

Focus Area: Infrastructure and Water Management (UI GreenMetric WR Indicators)

Classification: Academic / Institutional Policy Report

Executive Summary

This report provides a rigorous academic and functional evaluation of water sustainability practices at the institutional level, benchmarking performance against the UI GreenMetric Water (WR) indicators. The assessment reveals a transitional institutional framework.

The campus exhibits robust technical baseline infrastructure, evidenced by a >40% installation rate of water-efficient appliances and a significant, positive ecological impact supporting six to nine of the United Nations Sustainable Development Goals (SDGs). However, critical operational areas—specifically active water conservation and greywater recycling—remain in the design and preparation phases.

By detailing the current ecological footprint, permeable ground cover, and pollution mitigation policies, this document establishes a strategic roadmap to transition planned initiatives into highly mature, operational conservation programs.

1. Introduction

Water resource vulnerability is an escalating global concern, particularly within rapidly urbanizing regions of the Philippines. In Bacolod City, where seasonal monsoonal precipitation and reliance on localized aquifers present distinct hydrological challenges, academic and public institutions must serve as models for sustainable resource consumption.

This report evaluates current campus water metrics, systematically reviewing absorption surfaces, infrastructural efficiency, conservation policy development, and broader alignment with international sustainability frameworks.

2. Infrastructure and Spatial Metrics

2.1 Ground Permeability and Aquifer Recharge (WR.1)

The preservation of unpaved, permeable ground surfaces is a vital mechanism for mitigating the urban heat island effect, preventing localized flooding, and facilitating natural aquifer recharge.

The institutional spatial assessment indicates that the total area dedicated to water absorption—excluding designated forest and planted vegetation zones—stands





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While this percentage provides a functional baseline for urban stormwater retention, it suggests that a significant portion of the campus landscape remains dominated by impermeable surfaces (such as concrete pathways, asphalt parking lots, and building footprints).

To prevent excessive municipal runoff and counter localized groundwater depletion in Bacolod, future spatial designs must prioritize the integration of sustainable urban drainage systems (SUDs), such as bioswales, pervious concrete pavements, and open-grid gravel structures.

3. Resource Efficiency and Circular Infrastructure

3.1 Water-Efficient Technology Deployment (WR.4)

The primary line of defense against excessive water consumption is the optimization of end-use infrastructure.

The campus has achieved substantial progress in this sector, with water-efficient appliances (e.g., dual-flush toilets, low-flow aerated faucets, sensor-activated valves, and high-efficiency irrigation systems) installed across 40% to 60% of its facilities.

This high rate of technical adaptation yields a measurable decline in daily per capita water consumption. This physical infrastructure represents the strongest component of the institution's current water management index, serving as a reliable structural anchor for upcoming policy implementations.

3.2 Consumption of Treated and Recycled Water (WR.5)

Despite the success of low-flow appliance installation, the circularity of the institutional water cycle is in its early stages.

Currently, recycled or treated water (utilized for non-potable purposes such as landscape irrigation, cooling towers, and toilet flushing) accounts for only 1% to 25% of total water consumption.

This minimal integration indicates a heavy, continued reliance on municipal potable water networks and groundwater extraction. Scaling up this percentage is essential to reducing the institutional ecological footprint and mitigating strain on the local water utility providers of Bacolod City.

4.1 Programmatic Conservation and Recycling Status (WR.2 & WR.3)

While structural installations are moderately advanced, organized behavioral and policy frameworks require immediate activation.





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- **Water Conservation Programs (WR.2):** Currently designated as *"Program in preparation."*
- **Water Recycling Programs (WR.3):** Currently designated as *"Program in preparation."*

The transition from infrastructure deployment to systemic operational protocols is crucial. Formalized conservation frameworks must move beyond passive engineering controls to address behavioral patterns, leak detection schedules, rainwater harvesting policies, and institutional awareness campaigns. Similarly, the water recycling program requires formal operational guidelines to define greywater collection routes, purification standards, and safety monitoring frameworks.

4.2 Water Pollution Control and Wastewater Remediation (WR.6)

Unregulated wastewater discharge poses severe ecological risks to surrounding aquatic ecosystems and local public health.

- **Implementation Status:** *Policy and programs for water pollution control are in the early implementation stage.*

The institution has initiated the deployment of localized pollution control measures. These early-stage initiatives typically encompass grease trap maintenance in campus dining facilities, basic sedimentation basins, and initial guidelines for chemical disposal within academic laboratories.

To progress beyond this preliminary phase, the institution must enforce strict, ongoing water quality testing protocols and establish dedicated centralized greywater/blackwater treatment units to ensure all effluents comply with or exceed national Philippine clean water standards before environmental discharge.

5. Strategic Alignment with Sustainable Development Goals (SDGs)

The interconnectedness of institutional resource management and global sustainability is clearly reflected in the campus's operational trajectory. The ongoing water management programs exert a **significant impact**, directly and indirectly supporting **6 to 9 Sustainable Development Goals (SDGs)**.

