Annual Report
on SDG6 Clean Water and Sanitation

6.3 Water usage and care

6.3.1 - Does your university as a body have a process in place to treat waste water?

Thaksin University manages water resources through an integrated system that ensures sufficiency, safety, and sustainability across both Songkhla and Phatthalung campuses. The university draws water from three main sources: (1) treated mains water supplied by local municipalities, (2) surface water collected from on-campus catchment areas and reservoirs covering about 340,000 m^2 in Phatthalung Campus, and (3) recycled water from on-site wastewater-treatment systems. These sources are continuously measured and recorded through the TSU Utilities Management Database, with real-time Power BI dashboards displaying usage, leakage, and recovery rates for each major building cluster. The surface-water reservoir provides raw water for internal tap-water production at a capacity of 1,000–2,400 m^3 per day, while the reuse system supplies approximately 23,900 m^3 of treated water annually for irrigation, cleaning, and landscape maintenance for reducing the demand for fresh water by more than 10 percent. This comprehensive monitoring allows the university to understand the environmental impact of each water source and to improve efficiency through data-driven management.

Water quality analysis

The Water Quality Analysis Laboratory, Faculty of Science and Digital Innovation, Thaksin University, analyzed wastewater samples from Sra Rim Bueng and the pond behind the 50th Anniversary Building. Samples were received on 25 February 2025, and the reports were issued on 6 and 10 March 2025 (report numbers TR0006/2568–TR0010/2568). These historical results provide site-specific evidence of water-quality monitoring in support of the university's wastewater-management process.

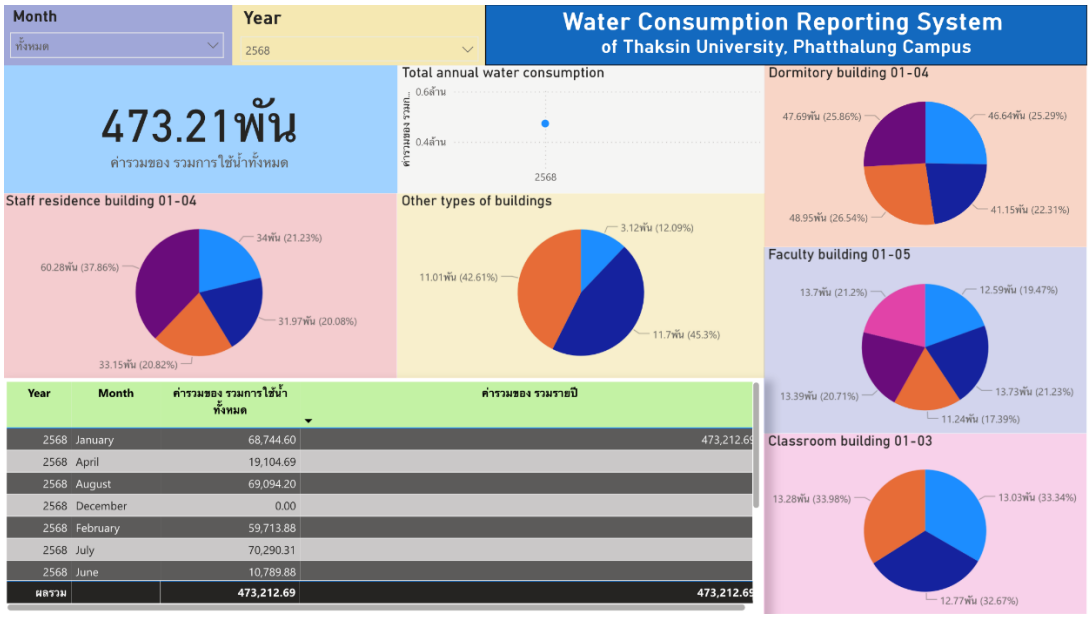
Parameter	Sra Rim Bueng	Pond behind the 50th Anniversary Building	Reference value in reports
pH	7.85	7.42	5–9
BOD (mg/L)	1.13	4.10	≤20
DO (mg/L)	7.93	7.50	≥6.0
TDS (mg/L)	213.33	120.00	≤500
Turbidity (NTU)	83.63	7.22	Not specified
Nitrate (mg/L)	0.21	0.21	≤5.0
Coliform bacteria (MPN/100 mL)	>1,600	>1,600	No pass/fail assessment given

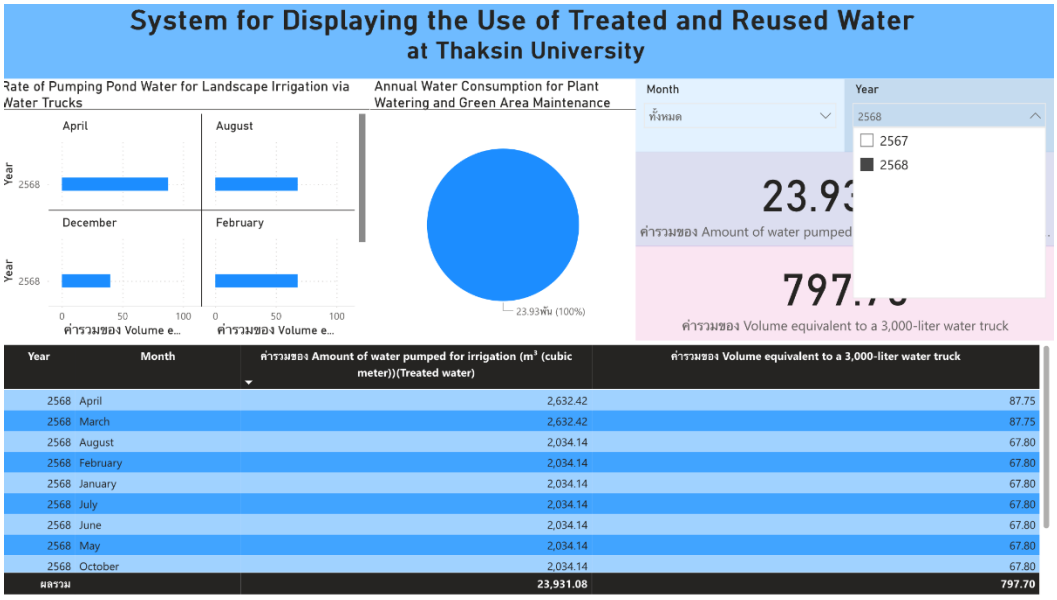
The reported pH, BOD, DO, TDS, and nitrate results at both locations met the respective reference values stated in the laboratory reports. These reference values draw on different frameworks: building-effluent criteria for pH, BOD, and TDS, and surface-water criteria for DO and nitrate. They therefore should not be presented as a single comprehensive certification of treated-effluent quality. No reference limit was provided for turbidity.

Coliform bacteria were reported as >1,600 MPN/100 mL at both locations. This is a lower-bound result rather than an exact concentration, so compliance with a numerical upper limit cannot be established from these results alone. Further microbiological testing with a suitable dilution range is recommended before deciding on reuse. The reports do not identify paired

influent and effluent samples and therefore do not establish pollutant-removal efficiency or demonstrate that all treated water meets every discharge or reuse requirement.

Source: certificate 3.3.1.pdf, pp. 1–10 (signed analytical reports). Values above follow the signed reports. The summary on PDF p. 12 appears to interchange the BOD and DO values for the second location; the signed BOD/DO report TR0008/2568 gives BOD 4.10 mg/L and DO 7.50 mg/L.





Wastewater from laboratories, dormitories, and academic buildings is treated through a biological filtration process and sedimentation ponds before reuse. The system operates on the principles of reduce–reuse–recycle, minimizing discharge to the environment and closing the water loop within the campus. Regular testing of pH, BOD, COD, TSS, and coliform is conducted by the Water Quality Testing Laboratory under ISO/IEC 17025 procedures to ensure that all treated water meets national standards before reuse or disposal. Hazardous chemical wastes from research activities are separately collected and safely disposed of through licensed companies to prevent contamination of natural water bodies. Research and education play a pivotal role in sustaining this model. The project “Activated Carbon from Krajood Residue for Wastewater Treatment” led by TSU’s researchers demonstrates how local biomass can be converted into effective filters for dye-wastewater purification and water recycling in community enterprises across Phanang Tung and Ko Saba. Through the Energy and Environmental Chemistry Engineering program, students engage in projects that monitor, analyze, and optimize water use and treatment systems, ensuring future generations value every drop of water. Together, these efforts demonstrate TSU’s comprehensive approach to measuring, treating, and reusing water resources responsibly in alignment with SDG 6 – Clean Water and Sanitation.




ISO/IEC17025


รักษ์ข้าวติวิสีฟ้าช้าง
RAKKHAWIDEE WITHITHACHANG

Supporting evidence:

Water-supply and monitoring records (January–December 2025) — Division of Building and Environment, TSU.

https://app.powerbi.com/view?r=eyJrIjoiMWFhNDI2N2QtZTUwMS00ZDNhLThmNDktNzE0ZWI0Y2FkN2M2IiwidCI6IjNkYTdmOTQ3LTY3NTAtNDYzMC04MDk2LWJiYTlmNzZlMjZhOCIsImMiOjEwfQ%3D%3D

Catchment-area and raw-water-reservoir utilization report, Phatthalung Campus

https://sdg.tsu.ac.th/detail.php?id_list=160&aNum=20231108092953

Research Paper

https://doi.org/10.1016/j.fuel.2024.132041

https://share.google/rMh5iWVq0Kb53mSzx

https://share.google/ie5lkaEI0z3YZt1fR