Annual Report
on SDG6 Clean Water and Sanitation

6.4 Water reuse

6.4.1 Policy to maximize water reuse across campus

Thaksin University has established a clear institutional policy to **maximize water reuse** across all campuses as part of its sustainability commitment under **the TSU Strategic Plan (2023–2027),** which aligns with the United Nations Sustainable Development Goal 6 (Clean Water and Sanitation). The university's policy, first implemented in 2022 and reviewed in 2024, promotes the efficient and sustainable use of water through the reuse of treated wastewater, rainwater harvesting, and circular-water innovations in both academic and operational settings. This policy operates seamlessly through five interrelated dimensions, policy and strategy, research, teaching, community engagement, and operation, ensuring that every aspect of the university's mission contributes to responsible water stewardship.

At the strategic and policy level, the TSU five-year plan defines a vision for a **"Green and Zero-Waste University"**, emphasizing the efficient use and reuse of resources. The university collaborates with **the Provincial Waterworks Authority Region 5 (PWA 5)** in long-term campaigns such as **"Valuing Water Resources through the 3Rs: Reduce, Reuse, Recycle",** encouraging behavioral change among staff and students to **minimize water consumption.** These initiatives also extend to campus infrastructure development, ensuring that all new or renovated buildings comply with national green-building standards that support water recycling and rainwater capture for cleaning and irrigation.

At the research level, Thaksin University has developed multiple applied innovations in water reuse. The flagship project **"Activated Carbon from Krajood Residue for Wastewater Treatment",** converts agricultural waste into high-performance carbon filters capable of removing dye pollutants from wastewater. The treated water is reused for non-potable purposes, such as cleaning laboratory floors and irrigating green spaces. Another notable project, **"Smart Greenhouse for Tropical Agriculture",** employs a closed-loop watering and humidity-recycling system that significantly reduces freshwater use in tropical crop production. These research efforts demonstrate a practical approach to circular-water management in both laboratory and field conditions.


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Through community outreach, TSU extends its **water reuse policy** beyond campus boundaries. In partnership with PWA 5 and local administrative organizations, the university regularly organizes public campaigns promoting efficient water use and trains community enterprises, such as Ban Kuan Phom and Ko Saba Krajood Craft Groups, in wastewater filtration and reuse using locally developed activated-carbon systems. These collaborations enable rural communities around the Songkhla Lake Basin to treat and reuse water safely, supporting SDG 6 (Clean Water).

At the operational level, both Songkhla and Phatthalung campuses have integrated water **recycling systems** in dormitories, laboratories, and green spaces. Treated greywater from washing and sanitation facilities is reused for toilet flushing and landscaping. Rainwater storage tanks and smart monitoring devices are installed to track consumption efficiency, while the **TSU Water Quality Testing Laboratory** conducts regular monitoring (pH, COD, BOD, TSS, coliform) to ensure that **all reused water meets national safety standards before application**. Altogether, **Thaksin University's water reuse policy** illustrates a holistic model of sustainable water management that unites governance, science, education, and community development. It ensures that every drop of water is valued, reused, and managed responsibly, reflecting TSU's role as a regional leader in the transition toward a circular and climate-resilient society.

Besides, Thaksin University's research and innovation actively support the **Reduce–Reuse–Recycle (3R)** principle for wastewater management. Multiple studies led by TSU researchers develop bio-based technologies (MFC, constructed wetlands, biochar systems) that enable treated water reuse for irrigation, industrial processes, and community applications, directly aligning with SDG 6.4.1: Policy to Maximise Water Reuse Across the University.

Public evidence:

- https://www.tsu.ac.th/home/files/แผนกลยุทธ์มหาวิทยาลัยทักษิณ_ระยะ5ปี_2566-2570.pdf
- https://www.tsu.ac.th/home/details.php?id=5572
- https://www.pwa.co.th/news/view/66584
- รายงานผลการวิเคราะห์คุณภาพน้ำเสียประจำอาคารพักบุคลากรและหอพักนิสิต
- Green University Policy” - Section 4: Water Management https://sdg.tsu.ac.th/detail.php?id_list=163&aNum=20231108221217
- https://scholar.google.com/citations?user=JfmLxN8AAAAJ&hl=th