Annual Report
on SDG 6 Clean Water and Sanitation

6.3 Water usage and care

6.3.2 Does your university as a body have processes to prevent polluted water entering the water system, including pollution caused by accidents and incidents at the university?

Thaksin University has established processes and systems to prevent, control, and treat wastewater generated by campus activities. These measures aim to prevent untreated wastewater and contaminants, including those arising from leaks or system malfunctions, from entering public drainage systems or natural water bodies. The key processes include:

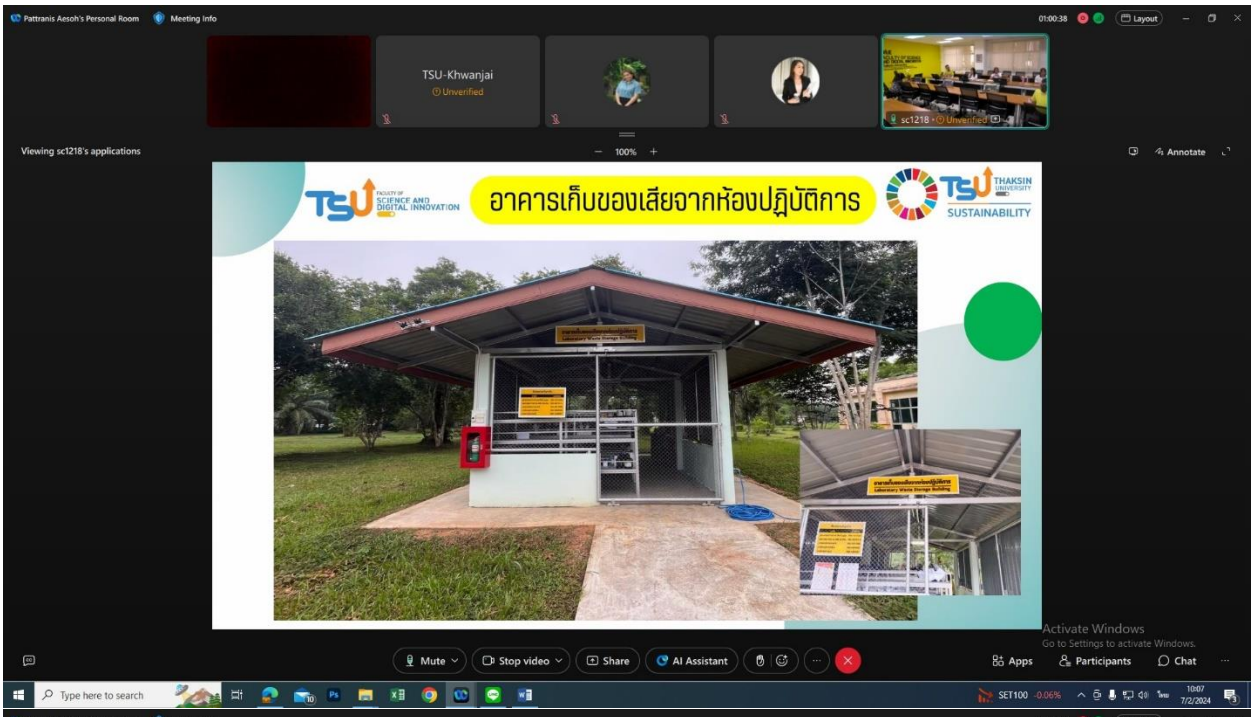
1) Wastewater collection and treatment: Wastewater from buildings and campus activities is
2) collected and directed to treatment systems before discharge.
3) Discharge control: Designated discharge points and procedures help prevent the direct
4) release of untreated wastewater into drainage systems or water bodies.
5) Effluent quality monitoring: Effluent is analyzed for specified water-quality parameters to
6) assess compliance with relevant criteria.
7) System inspection and maintenance: Wastewater treatment and drainage systems are
8) regularly inspected and maintained to reduce the risk of leakage and operational failures.

The university's infrastructure for preventing contaminated water from entering the water system comprises two main components: grease traps at Food Centres 1 and 2, which intercept fats, oils, and grease before wastewater enters the drainage system; and wastewater treatment tanks and septic tanks serving academic buildings, student dormitories, and staff residences, which treat wastewater before discharge.

Thaksin University has established comprehensive measures to prevent polluted or hazardous water from entering water system, ensuring safety in both routine operations and emergency situations. The university's wastewater network is designed with separate pipelines for domestic greywater, wash-water, and laboratory effluent to avoid cross-contamination. Each chemical (building is equipped with chemical drainage lines, retention tanks, and sedimentation ponds for temporary containment before transfer to the central treatment facility. All wastewater is treated biologically and chemically in compliance with national standards prior to discharge or reuse. The system capacity exceeds 2,400 m^3 per day, supported by real-time monitoring and scheduled maintenance under the Division of Building and Environment.

Laboratory Waste Management and Chemical Emergency Preparedness

Thaksin University's Phatthalung Campus operates a central laboratory waste storage facility, managed by the Faculty of Science and Digital Innovation. The facility serves university units by receiving laboratory waste for temporary storage before onward disposal. Procedures and regulations for waste submission have been communicated to users to support consistent practices. Waste is segregated and stored in clearly labelled areas, with safety equipment and sand available for chemical emergencies. These measures support pollution prevention by reducing the risk of uncontrolled chemical releases that could contaminate campus water systems.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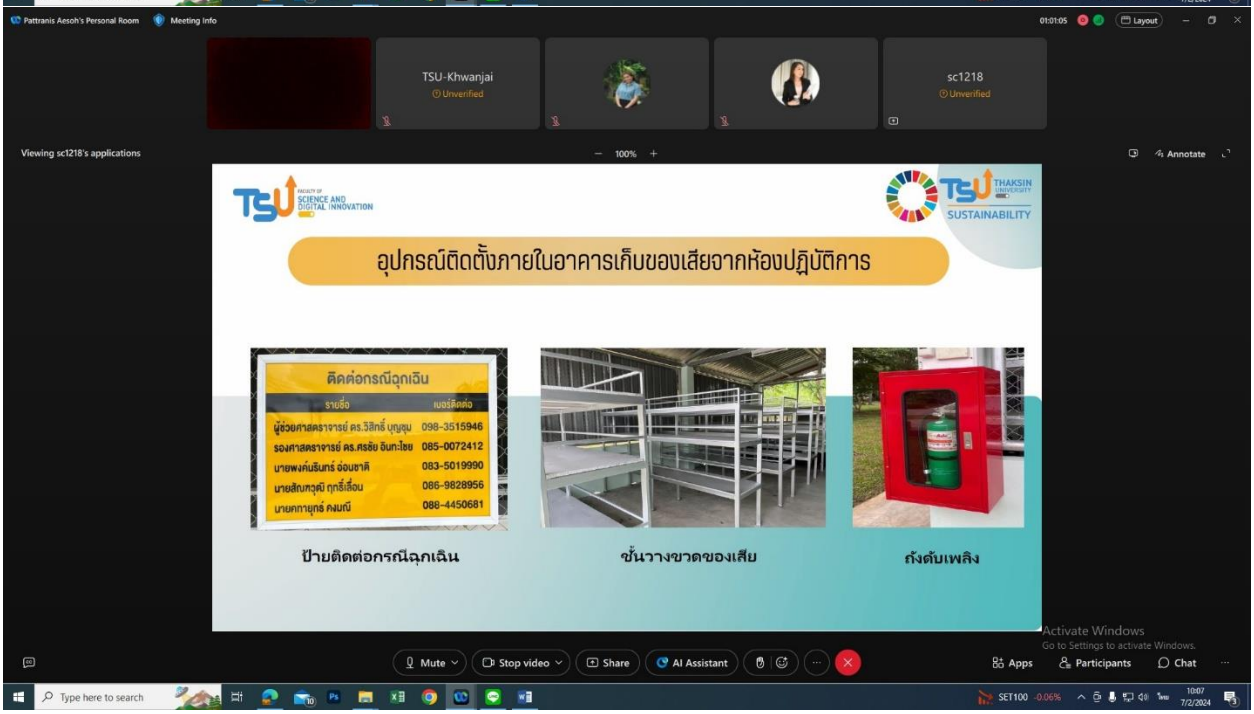
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อาคารเก็บของเสียจากห้องปฏิบัติการ
Laboratory Waste Storage Building
TSU NEWS
คณะวิทยาศาสตร์และนวัตกรรมดิจิทัล ม.ทักษิณ เปิดตัว
อาคารเก็บของเสียจากห้องปฏิบัติการทางวิทยาศาสตร์
ลดปัญหาขยะปนเปื้อน ร่วมสร้างเป้าหมายการพัฒนาที่ยั่งยืน
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Laboratories and research facilities strictly follow the ESPREL-Lab Safety standard issued by the National Research Council of Thailand (NRCT), which governs the safe handling, storage, and disposal of hazardous substances through certified waste-management companies. Chemical and biological waste are collected in sealed containers, documented, and transferred for off-site treatment to prevent any release into the environment. The university also enforces an institutional Emergency Response Plan, covering chemical spills and contamination incidents at university, faculty, and program levels, with annual safety drills supervised by the Environmental and Safety Committee. Research activities at TSU focus strongly on wastewater treatment and water-pollution prevention. Projects such as “Highly enhanced adsorption and photodegradation of various dyes in wastewater using CuAl-LDO/AC/Fe_3O_4 composites” and “Wastewater treatment using activated carbon from Krajood residues” have demonstrated efficient removal of laboratory dyes such as Eriochrome Black T and natural reed-dye pollutants by adsorption and photocatalysis under visible light, achieving over 95 % decolorization. These research outputs are transferred to community enterprises to promote zero-waste and clean-water innovations.

Teaching and community engagement reinforce these practices. The Energy and Environmental Chemistry Engineering Program integrates environmental pollution, water-treatment technologies, and laboratory-safety modules into its curriculum to instill awareness of

water conservation, wastewater reuse, and pollution prevention among students. Through service-learning projects, students collaborate with local Krajood-weaving communities to apply TSU's treatment systems for dye-wastewater purification, supporting clean-water access and sustainable livelihoods.



Through these integrated policies, research, education, outreach, and operational systems, Thaksin University effectively prevents polluted water from entering its environment, ensures safe

reuse of treated water, and strengthens its commitment to sustainability under SDG 6 (Clean Water and Sanitation) and SDG 12 (Responsible Consumption and Production).



In 2025, Thaksin University's laboratory waste management framework included a central laboratory waste storage facility at Phatthalung Campus, established in 2024 and managed by the Faculty of Science and Digital Innovation. The facility was designed to support the segregation,

temporary storage, and controlled handling of laboratory waste before appropriate disposal. Established waste submission procedures, designated storage areas, and chemical emergency equipment provide an institutional framework for reducing the risk of hazardous substances entering campus drainage and water systems. Verification of operational records from 2025 is needed to confirm the extent of waste collection, storage, and disposal activities during the reporting year.

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

Clean, Safe Tap Water for Everyone at Thaksin University

https://tsu.ac.th/home/details.php?id=5527

Introduction to Laboratory Safety

https://www.facebook.com/share/17RRzvZR1K/

Annual Report of Faculty of Science and Digital Innovation

https://cdnc.heyzine.com/files/uploaded/v3/ebd13a7b3086759e2c5a5d1948662b6f816148b4.pdf?utm

Research Paper

https://doi.org/10.1016/j.diamond.2025.112618