

## Annual Report on SDG6 Clean Water and Sanitation

### 6.3 Water usage and care

#### 6.3.5 Water-efficient landscaping (drought-tolerant plants)

Thaksin University has adopted an integrated approach to landscape and building management that minimizes water consumption and enhances ecological sustainability across both the Songkhla and Phatthalung campuses. Guided by national building and environmental regulations as well as **the TSU Green Campus and Building Design Standards**, every new or renovated facility incorporates **water-saving features** such as **drought-tolerant plants**, permeable ground surfaces, rainwater-harvesting systems, and drip-irrigation technology. These efforts align with international building standards whose mutual aim is to ensure that all structures and landscapes are safe, efficient, and sustainable, and that environmental policies are effectively implemented on campus. The university's environmental strategy emphasizes the creation of low-maintenance green areas using resilient native species, including *Terminalia catappa*, *Wrightia religiosa*, *Tabebuia chrysantha*, *Etlingera elatior*, and **drought-resistant grasses** to reduce water demand while maintaining natural biodiversity. The landscaping plan is closely integrated with TSU's broader climate-action and green-infrastructure initiatives to ensure long-term water conservation, flood resilience, and carbon-neutral development.



Scientific research plays a central role in advancing these efforts. The project **“Smart Greenhouse for Efficient Water Management in Tropical Agriculture,”** led by Dr. Sakdanan Saelim from the Faculty of Technology and Community Development, developed **an automated greenhouse system** that controls humidity and temperature through misting and evaporative-cooling mechanisms to minimize water use in tropical climates. Additional research

on organic soil mixtures, moisture-retaining materials, and the integration of local drought-tolerant plants has been applied in the design of new university gardens and demonstration plots.



Teaching and learning activities reinforce these concepts through academic courses and project-based education. Students in **Environmental Science, Landscape Ecology, and Community Water Management** learn to design **eco-campus models** that apply water-efficient landscaping principles and simulate drip-irrigation systems. Through cooperative and work-integrated education, students also collect field data on water usage and participate in the university’s green-area monitoring programs, linking theoretical learning with practical environmental stewardship.

Community engagement further extends the university’s impact. TSU collaborates with local organizations and schools in Phatthalung and Songkhla to promote sustainable greenery. The activity “**TSU Loves Trees, Expanding Green Areas**” involved planting 599 trees along the route to the Faculty of Nursing, using biochar-enriched soil to retain moisture and reduce watering frequency. The university also participates in regional projects such as the Na-rim-le



coastal rice-field restoration, which integrates local water management and eco-tourism, and organizes outreach programs to train communities on solar-powered automatic irrigation systems and drought-resistant crop selection.



At the operational level, TSU's Facility and Environmental Division continuously upgrades campus infrastructure to **optimize water efficiency**. Smart-sprinkler and rain-sensor-drip systems have reduced irrigation water consumption by more than 40 percent. Permeable pavements and green roofs are expanding each year, while harvested rainwater from rooftops is reused for landscape maintenance and cleaning. All construction and renovation projects comply with the **Green Building Standards and Safety Regulations**, ensuring that every facility embodies sustainability, resilience, and safety as core design principles. Through this integrated framework, combining research, education, community service, and institutional management, Thaksin University demonstrates its commitment to sustainable water use and landscape management. These collective actions directly support Sustainable Development Goal 6 (Clean Water and Sanitation) and reinforce the university's role as a model of environmentally responsible higher education in southern Thailand.

**Public evidence:**

- <https://tsu.ac.th/home/details.php?id=3926>
- <https://tsu.ac.th/home/details.php?id=5527>
- <https://mgronline.com/south/detail/9660000026501>
- <https://www.tsu.ac.th/home/details.php?aNum=20241128120205&gid=2&id=4346>