



UI GreenMetric Questionnaire

University : Songkhla Rajabhat University
Country : Thailand
Web Address : www.skru.ac.th

[4] Water (WR)

[4.5] Consumption of treated water (WR.5)



Treated water pond with aquatic plants functioning as an ecological water polishing and retention system within Songkhla Rajabhat University.



Aeration control panel used to operate aerator units for improving the quality of treated water in the campus pond system.



Solar-powered aeration systems in open drainage channels, campus canals, and retention ponds at no fewer than 30 points.



Description:

Songkhla Rajabhat University implements an integrated treated-water consumption program across the Songkhla Campus and Satun Campus. The program applies treated and quality-improved water exclusively for approved non-potable purposes, including landscape irrigation, plant watering, green-area maintenance, ecological pond support, and agricultural learning activities. Treated water is not used for drinking, food preparation, laboratory analysis, or other direct-contact purposes.

At the Songkhla Campus, the treated-water system integrates building-level wastewater treatment, conditioning and disinfection, ecological treatment ponds, open drainage channels, retention areas, aquatic-plant polishing, storage facilities, and distribution pumps. Treated water is retained and further polished through sedimentation, aquatic vegetation, and aeration before being supplied to landscape and green-area service zones.

At the Satun Campus, treated and quality-improved water is managed through retention ponds, open drainage systems, storage tanks, pipe-distribution infrastructure, agricultural learning plots, and the Thung Yai Saraphi Model. The system supports irrigation of planting areas, green landscapes, and campus-based agricultural learning zones. This approach reduces dependence on treated tap water while supporting sustainable agriculture, ecological landscape management, and climate-resilient campus development.

The university operates solar-powered aeration systems in open drainage channels, campus canals, and retention ponds at no fewer than 30 locations. These units improve dissolved oxygen, enhance circulation, support aerobic microbial degradation of organic matter, reduce stagnation and odor, and strengthen the natural self-purification capacity of retained water. The solar-powered system also reduces dependence on grid electricity and integrates renewable energy with treated-water management.

For the reporting period, the measured annual water-balance records show that the Songkhla Campus supplied 2,940 m³ of treated water to its non-potable distribution network. Of this volume, 2,820 m³ was consumed for approved non-potable uses, while 120 m³ represented operational losses, flushing, and maintenance losses within the distribution system. The total eligible non-potable water demand at the Songkhla Campus was 3,480 m³, of which 660 m³ was supplied by supplementary treated tap water. Therefore, treated water accounted for 81.03% of eligible non-potable water consumption at the Songkhla Campus.

At the Satun Campus, 2,640 m³ of treated or quality-improved water was supplied through the storage and distribution system. Of this amount, 2,550 m³ was consumed for agricultural learning plots, landscape irrigation, plant watering, and green-area maintenance, while 90 m³ was recorded as operational and distribution losses. The total eligible non-potable water demand at the Satun Campus was 3,060 m³, of which 510 m³ was supplied by supplementary treated tap water. Therefore, treated water accounted for 83.33% of eligible non-potable water consumption at the Satun Campus.

Across both campuses, the university supplied 5,580 m³ of treated water and consumed 5,370 m³ for eligible non-potable activities. The combined eligible non-potable water demand was 6,540 m³ per year. Treated-water consumption therefore represented 82.11% of the total eligible non-potable water demand, exceeding the UI GreenMetric threshold of more than 75% treated water consumed.

The treated-water consumption ratio is calculated as follows: Treated Water Consumption Ratio (%) =

$$\frac{\text{(Treated Water Consumed for Approved Non-Potable Uses} \div \text{Total Eligible Non-Potable Water Demand)} \times 100$$

The denominator includes water used for landscape irrigation, plant watering, green-area maintenance, ecological pond support, and agricultural learning plots. It excludes drinking water, food preparation, toilet flushing where untreated water is not used, laboratory use, and other potable or direct-contact activities.

The university maintains verification through outlet-water meters, irrigation-distribution meters, pump-operation logs, tank-level records, solar-aeration maintenance records, and periodic water-quality monitoring. Environmental engineering personnel conduct regular inspection and follow-up to ensure that the treatment, storage, and distribution systems operate effectively and that treated water remains suitable for its intended non-potable uses.



The program supports SDG 3: Good Health and Well-being through improved sanitation and reduced stagnant-water risks; SDG 4: Quality Education through campus-based water-management learning; SDG 6: Clean Water and Sanitation through wastewater treatment and reuse; SDG 7: Affordable and Clean Energy through solar-powered aeration; SDG 9: Industry, Innovation and Infrastructure through resilient water-treatment and distribution systems; SDG 11: Sustainable Cities and Communities through climate-resilient green infrastructure; SDG 12: Responsible Consumption and Production through circular water use; SDG 13: Climate Action through reduced dependence on treated tap water and improved adaptation to drought and heavy rainfall; SDG 14: Life Below Water through reduced pollutant transport; SDG 15: Life on Land through support for vegetation and soil-moisture functions; and SDG 17: Partnerships for the Goals through cooperation among university units, personnel, students, and community partners.

Campus	Treated Water Supplied (m ³ /year)	Treated Water Consumed (m ³ /year)	Operational / Distribution Loss (m ³ /year)	Supplementary Tap Water (m ³ /year)	Total Eligible Non-Potable Water Demand (m ³ /year)	Treated Water Consumption Rate
Songkhla Campus	2,940	2,820	120	660	3,480	81.03%
Satun Campus	2,640	2,550	90	510	3,060	83.33%
Combined Total	5,580	5,370	210	1,170	6,540	82.11%

Campus	Treated-Water System	Main Non-Potable Uses	Core Monitoring Evidence
Songkhla Campus	Wastewater treatment, conditioning/disinfection, ecological ponds, aquatic plants, canals, solar-powered aerators	Landscape irrigation, plant watering, green areas, ecological ponds	Water-meter records, aerator logs, treatment records, water-quality results
Satun Campus	Retention ponds, storage tanks, pipe distribution, green areas, Thung Yai Saraphi Model	Agricultural learning plots, landscape irrigation, plant watering, green-area maintenance	Storage/pump records, irrigation logs, water-meter readings, water-quality results
Combined Result	Integrated treated-water reuse system	Approved non-potable campus activities	More than 75% treated water consumed

Accordingly, Songkhla Rajabhat University is classified under the UI GreenMetric WR.5 category of:
More than 75% treated water consumed