





Template for Evidence(s) UI GreenMetric Questionnaire

University : Shinawatra University
Country : Thailand
Web Address : www.siu.ac.th
[4] Water (WR)

[4.1] Water Conservation Program Implementation

	
1.1 Rainwater Harvesting Systems	1.2 Lake Management Systems

Description:
Systematic and Formalized Program (Full Implementation)

Shinawatra University has developed and implemented a comprehensive, systematic water conservation program to reduce water consumption and promote sustainable water management practices. This program includes technologies and strategies for efficient water use, resource recycling, and long-term water sustainability. The water conservation program fully integrates into the university's daily operations and utilizes various innovative systems.

1.3 Rainwater Harvesting Systems

The university has installed rainwater harvesting systems on all significant buildings. These systems capture rainwater from rooftops and direct it into the university's lakes for storage and natural filtration. The collected rainwater is primarily used for irrigation, reducing the university's reliance on freshwater sources for maintaining its landscape. Utilizing the lakes as natural reservoirs, the university integrates rainwater harvesting and sustainable water storage into its overall water management strategy.

1.4 Lake Management Systems

- The campus features four interconnected lakes, critical components of the university's water management strategy. Each lake is monitored and managed to maintain optimal water levels and



quality. The lakes are utilized to naturally filter and cool water, which is then recycled back into the system for non-potable uses such as irrigation and air conditioning.

- Lake No. 4, the largest, is central to cooling water used in the air conditioning chiller system. Once the water has cooled, it is returned to the first lake in the cycle for reuse.

1.5 Water Tanks and Storage

- Large-capacity water tanks, each with a capacity of 1,800 m³ (two tanks), have been strategically placed across the campus to support water conservation efforts and store rainwater and excess lake water. These tanks ensure water is available during dry periods or in high demand. The stored water is primarily used for landscape irrigation and non-potable purposes, significantly reducing the need for external water sources.
- To further enhance efficiency, some stored water is pumped to the university's tower, which flows down to the main buildings through a gravity-fed system, eliminating the need for additional pump machines. This gravity flow system optimizes energy use while supporting sustainable water management practices and supporting a steady water supply for campus operations.

1.6 Water-Efficient Technologies

Low-flow faucets, water-efficient toilets, and automatic irrigation systems have been installed throughout the campus to minimize water wastage. Smart sensors ensure that water is only used when necessary, and automatic systems adjust watering schedules based on real-time data, further enhancing water conservation efforts.

Impact and Achievements:

- The comprehensive water conservation program has reduced the university's reliance on external water sources by 40%, thanks to the extensive use of rainwater harvesting, lake management, and water recycling technologies.

The campus-wide installation of smart irrigation and water-saving devices has reduced water consumption by 40%, leading to substantial annual water savings.



Template for Evidence(s) UI GreenMetric Questionnaire

University : Shinawatra University
Country : Thailand
Web Address : www.siu.ac.th
[4] Water (WR)

[4.2] Water Recycling Program Implementation (WR.2)



2.1 Lake No. 1 (Initial Filtration and Sedimentation)

2.2 Bird eye view of Lakes



2.3 Maps of Lakes in Shinawatra University

**Description:**

Shinawatra University operates a fully integrated water recycling system that ensures 100% of water used in specific campus processes is continuously reused. The system utilizes a network of four lakes, each pivotal in filtration, cooling, and recycling, making it a sustainable and efficient model for water management.

2.1 Lake No. 1 (Initial Filtration and Sedimentation)

The water recycling process begins at Lake No. 1, where water is directed after being used in various campus operations. The water undergoes an initial sedimentation process in this lake, allowing solid impurities and particles to settle. This natural filtration ensures the water is purified before continuing through the system.

2.2 Lake No. 2 (Secondary Filtration and Pre-Use)

After settling in Lake No. 1, the water flows into Lake No. 2, which is larger and provides additional time for further filtration and purification. This stage helps to improve the water quality before it is pumped for use in the air conditioning system and irrigation.

The filtered water from Lake No. 2 is then pumped and used in two main ways:

- **Air Conditioning Chiller System:** The university's chiller system uses water to cool the air conditioning units, significantly reducing the need for fresh water.
- **Plant Irrigation:** Water is also used to irrigate the extensive campus greenery, promoting efficient water usage for landscape maintenance.

2.3 Temperature Reduction in Lakes No. 3 and No. 4

After passing through the air conditioning system, the now-warmed water is directed into Lake No. 3 and Lake No. 4, the largest of the four lakes. These lakes are designed to hold the water and allow it to cool naturally, reducing its temperature before recycling into the system. This cooling process is essential, especially after the water has been used in the chiller system.

2.4 Recycling Loop (Returning to Lake No. 1)

Once the water in Lake No. 4 has cooled sufficiently, it is ready for reuse and is cycled back to Lake No. 1. This completes the loop, ensuring that all water in this system is continuously filtered, cooled, and recycled for future use.

This closed-loop system reuses all water used in the air conditioning and irrigation processes, significantly reducing the campus's reliance on fresh water. The continuous water recycling within this system underscores Shinawatra University's commitment to sustainable water management and resource conservation.



Template for Evidence(s) UI GreenMetric Questionnaire

University : Shinawatra University
Country : Thailand
Web Address : www.siu.ac.th
[4] Water (WR)

[4.3] Water-efficient Appliances Usage (WR.3)

<p>3.1 The Visual Reminder Poster in English Version</p>	<p>3.2 The Visual Reminder Poster in Chinese Version</p>
<p>3.3 The Visual Reminder Poster in Thai Version</p>	

**Description:**

Shinawatra University is leading a comprehensive water conservation initiative with its campaign titled "Smart Water, Smart Savings: Make Every Drop Count. " The campaign is designed in three languages, Thai, Chinese, and English, to reach its diverse student body, which includes students from various countries. It emphasizes the importance of water-efficient appliances and encourages the entire campus community to adopt water-saving practices.

As part of this initiative, the university has replaced traditional fixtures with sensor-activated taps and high-efficiency toilet flush systems, ensuring that over 80% of campus appliances are water-efficient. The multilingual campaign encourages students and staff to take small actions, such as installing low-flow showerheads, fixing leaks promptly, and shortening shower times, collectively contributing to significant water savings.

The poster, available in three languages, is a visual reminder of the global responsibility to conserve water. It highlights that a single dripping faucet can waste up to 20 gallons daily. By raising awareness across the entire international campus community, Shinawatra University fosters a culture of sustainability and responsible water usage.



Template for Evidence(s) UI GreenMetric Questionnaire

University : Shinawatra University
Country : Thailand
Web Address : www.siu.ac.th
[4] Water (WR)

[4.4] Consumption of Treated Water (WR.4)

	
4.1 Treatment System at University	4.2 The Treatment system control area
	
4.3 Water retention tank before water is used	

Description:



Shinawatra University actively uses a combination of rainwater, groundwater, and surface water. A substantial portion of this water undergoes treatment through an on-campus water treatment system. This treated water is utilized for various non-potable purposes, such as irrigation, air conditioning chiller systems, and other operational needs across the university.

The university effectively consumes more than 50-75% of its water from treated water sources, significantly reducing its reliance on external water supplies. The treated water is sourced from on-campus installations and external facilities when necessary. This well-established water treatment process ensures that the university's water consumption is sustainable and efficiently managed, aligning with its commitment to responsible water resource utilization.





Template for Evidence(s) UI GreenMetric Questionnaire

University : Shinawatra University
Country : Thailand
Web Address : www.siu.ac.th

[4] Water (WR)

[4.5] Water Pollution Control in Campus Area (WR.5)

			
5.1 Control room		5.2 Water pump for controlling system	

Description:

Shinawatra University has developed a robust water pollution control program to prevent polluted water from entering the campus water system. This program addresses potential contaminants such as stormwater runoff containing litter and chemicals, wastewater from laboratories that may contain hazardous substances, and oil and grease from parking lots that could clog drainage systems.

Currently, the university's policy and programs for water pollution control are fully implemented and monitored regularly. These measures include regularly inspecting water quality based on physical, chemical, and biological parameters to ensure no pollutants enter the campus's water bodies. Dedicated teams frequently monitor water quality, and programs are in place to effectively treat and manage stormwater runoff, laboratory wastewater, and drainage pollutants. Additionally, awareness campaigns are conducted to educate students and staff about preventing water pollution, making this an ongoing and comprehensive effort to maintain water quality on campus.



Template for Evidence(s) UI GreenMetric Questionnaire

University : Shinawatra University
 Country : Thailand
 Web Address : www.siu.ac.th

[4] Water (WR)

[4.6] Planning, implementation, monitoring and/or evaluation of all programs related to Water Management through the utilization of Information and Communication Technology (ICT)

Stage	Activities/Programs	ICT Utilization	Evidence	Timeline	Responsible Team/Department
Planning	Develop water conservation strategy, set targets	Water usage analytics software	Strategic plan documents, water usage reports	Jan 2024 - Feb 2024	Sustainability Office, ICT Dept
Implementation	Install water-saving fixtures, promote awareness	Smart meters, water-saving app	Installation logs, awareness campaign reports	Mar 2024 - Apr 2024	Facility Management, ICT Dept
Monitoring	Track water usage and savings	Real-time monitoring software	Water usage reports, savings analytics	Ongoing	Sustainability Office, ICT Dept
Evaluation	Assess effectiveness of conservation programs	Data analysis tools, feedback systems	Program evaluation reports, stakeholder feedback	Annually	Sustainability Office, ICT Dept





The meeting to plan and develop a comprehensive water conservation strategy and set measurable targets for water savings.

Description:

SIU has been meeting and planning to develop a comprehensive water conservation strategy and set measurable targets for water savings, but it is not yet complete.