University : National Chin-Yi University of Technology
Country : Taiwan
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[SDGs 17] Partnership for the Goals 全球夥伴

[17.3.6] Please indicate if your university publishes progress against SDG6?

Water Conservation Program Implementation at NCUT

Campus environment and safety management indicators

1. Specific Practices and Performance of Water-Saving Measures:

- Develop a comprehensive water conservation management plan or implementation strategy and establish a dedicated promotion team.
- Appoint full-time or part-time water conservation management personnel responsible for overseeing and promoting the execution of water-saving initiatives.
- Conduct a thorough analysis of water-saving opportunities, including but not limited to: laboratory water usage, agricultural (forest) farm water consumption, domestic water (dormitories and dining facilities), restroom water usage, condensate recovery from air conditioning systems, rainwater harvesting, and the reuse of discharged water from the sewage treatment plant.
- Enroll staff members in water conservation courses or seminars organized by government agencies or professional institutions to enhance their knowledge and skills.
- Integrate water conservation into routine operations and utilize gatherings or events as opportunities to advocate for water conservation principles and practices.

2. Specific Improvement Measures for Water Conservation:

a. Enhance Water Savings in the Air-Conditioning System:

- Implement more efficient cooling technologies and equipment.
- Regularly inspect and maintain the air-conditioning system to fix leaks and optimize its water usage.
- Consider the installation of condensate recovery systems to recycle water.

b. Enhance Water Saving Methods for Water Equipment:

- Retrofit water equipment with water-saving devices such as low-flow faucets and showerheads.
- Implement a regular maintenance schedule to address leaks and minimize water wastage.
- Investigate the use of smart meters and sensors for real-time monitoring and control of water equipment.

c. Implement Improvement Measures for Water Saving in Toilets:

- Install dual-flush toilets or retrofit existing ones to allow for varying levels of flushing based on need.
- Replace outdated toilet models with more water-efficient ones that meet industry standards.
- Educate users about responsible toilet use and reporting of leaks.

d. Implement Improvement Measures for Water Saving in Dormitories and Restaurants:

- Encourage responsible water use among residents and patrons through awareness campaigns.
- Install water-saving appliances and fixtures in common areas, such as restrooms and kitchens.
- Develop guidelines for efficient laundry and dishwashing practices.

e. Implement Improvement Measures for Water Conservation in Gardens and Green Spaces:

- Utilize drought-resistant plants and xeriscaping techniques to reduce outdoor water demand.
- Employ smart irrigation systems that adjust watering schedules based on weather conditions.
- Capture and reuse rainwater for irrigation purposes.
- Implement mulching to retain soil moisture and reduce evaporation.

These measures aim to comprehensively address water conservation efforts across various areas of the institution.

3. Rainwater Collection and Reclaimed Water Utilization Measures:

Specific Improvement Measures for Rainwater Collection and Reuse:

a. Enhanced Rainwater Harvesting Systems:

- Upgrade and expand rainwater collection infrastructure to capture and store a greater volume of rainwater.
- Implement advanced filtration and purification techniques to ensure collected rainwater meets quality standards for its intended use.

b. Application Diversification:

- Develop a comprehensive plan for utilizing harvested rainwater across the campus, including irrigation, landscape maintenance, and non-potable water needs.
- Investigate the feasibility of using treated rainwater for flushing toilets and other non-potable applications.

c. Maintenance and Monitoring:

- Establish routine maintenance protocols to keep rainwater harvesting systems in optimal working condition.
- Utilize monitoring systems to track rainwater collection, storage levels, and quality to maximize efficiency and ensure reliability.

Reclaimed Water Reuse Improvement Measures:

a. Advanced Treatment Technology:

- Upgrade reclaimed water treatment facilities with state-of-the-art technology to enhance water quality.
- Ensure that reclaimed water meets all safety and regulatory standards for its intended applications.

b. Expanded Usage Scenarios:

- Explore additional opportunities for using reclaimed water, such as cooling systems, landscape irrigation, or industrial processes.

- Develop clear guidelines and protocols for each reclaimed water application to minimize health and environmental risks.

c. Public Awareness and Education:

- Educate the campus community and stakeholders about the benefits and safety of reclaimed water usage to build trust and encourage its responsible use.

Improvement Measures for Reuse of Discharged Water from Sewage Treatment Plants:

a. Enhanced Treatment Processes:

- Upgrade sewage treatment facilities to improve the quality of discharged water, making it suitable for specific reuse purposes.
- Implement tertiary treatment processes to remove contaminants and pathogens effectively.

Targeted Reuse Applications:

- Identify and prioritize potential reuse applications for the treated wastewater, such as irrigation, industrial processes, or groundwater recharge.
- Develop infrastructure and distribution systems to deliver reclaimed water to designated areas.

Regulatory Compliance:

- Ensure that all reuse practices comply with local, regional, and national regulations regarding reclaimed water quality and safety.
- Regularly monitor and report on the quality of discharged water to relevant authorities.

By implementing these measures, the institution can make significant strides in maximizing the utilization of rainwater, reclaimed water, and treated wastewater while promoting sustainability and resource conservation.

4. Water Conservation Performance Evaluation:

a. Reduction in Target Water Consumption:

- Define and monitor specific reduction goals for water consumption in accordance with the institution's water conservation plan.

b. Change in Average Water Consumption per Person per Year:

- Calculate and track the average water consumption per person annually to measure progress and identify trends.

c. Total Water Savings:

- Calculate the total volume of water saved through various conservation initiatives and practices.

d. Achieved Value of Water Consumption Target:

- Determine the extent to which the water consumption reduction goals have been met or exceeded.

e. Total Water Savings (cubic meters/year):

- Express the total water savings achieved in cubic meters per year.

f. Average Water Consumption per Person per Year (liter/year/person):

- Express the average water consumption per person per year in liters.

g. Cost of Water Saving and Improvement Measures:

- Document the expenses associated with implementing water-saving measures, including equipment, maintenance, and personnel costs.

h. Economic Benefits of Water Saving:

- Calculate the financial benefits resulting from reduced water bills throughout the year due to the implemented water conservation measures.

By evaluating these performance metrics, the institution can gauge the effectiveness of its water conservation efforts, measure cost-effectiveness, and demonstrate the economic benefits of sustainable water management practices.

5. Recognition by the Government for Excellence and Special Innovations:

a. "Water Conservation Outstanding Unit and Outstanding Individual Award" by the Water Resources Department of the Ministry of Economic Affairs:

- Acknowledgment and accolades from the Water Resources Department of the Ministry of Economic Affairs for outstanding achievements in water conservation.

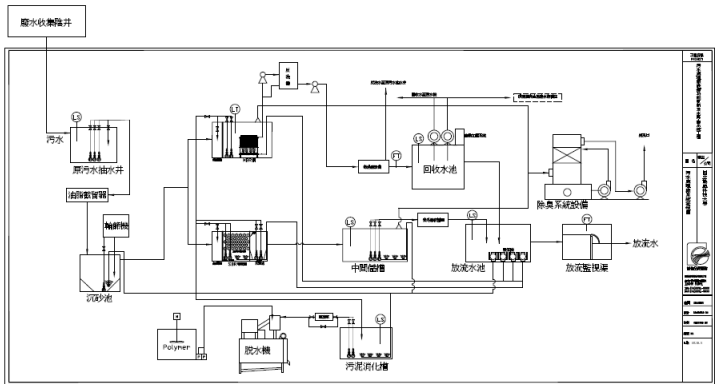
b. Commendations from Other Government Departments:

- Receipt of certificates or official documents of commendation from various government departments recognizing excellence in water conservation efforts.

c. Showcasing Innovative Water-Saving Methods:

- Sharing innovative water-saving methods as exemplary models for other educational institutions to follow and adopt.

These recognitions and innovations underscore the institution's commitment to water conservation and serve as inspiration for others



國立勤益科技大學污水處理廠系統流程圖

NCUT has a sewage treatment plant, which is responsible for the sewage treatment and laboratory wastewater of the whole school. The sewage is partially recycled and reused according to regulations, and the rest is discharged from the discharge port.

NCUT reuses the discharged water treated by

The Mingxiu Lake of NCUT can be used as an ecological lake at

the sewage treatment plant and first deposits it in the middle pool.	the campus, and it also has a function of detention ponds, which can regulate the amount of water.



Water saving equipment

Description:

1. **Environmental Policy:** Our school is committed to upholding the fundamental principles of environmental protection, which include "compliance with all applicable laws and regulations," "preventing pollution," "promoting recycling," and "pursuing continuous improvement." We pledge to strictly adhere to environmental laws mandated by the government, conduct routine inspections, and effectively execute pollution prevention and control measures. In addition, we prioritize education and training to raise environmental awareness among all employees. We are dedicated to fostering a culture of continuous improvement and relentlessly striving to enhance the quality of our environment. In doing so, we embrace our role as responsible members of the global community.
2. **Water Pollution Prevention and Management:** NCUT adheres to all legal requirements by applying for a water pollution prevention and control license. Upon thorough evaluation by the Taichung City Environmental Protection Bureau, our school's domestic sewage and experimental wastewater are appropriately directed to the sewage treatment plant and discharged in accordance with the prescribed treatment procedures.
3. **Sewage Treatment Plant:** The school's sewage system gathers wastewater from each building and channels it to our dedicated sewage treatment facility through sewage culverts. This facility consists of several essential components, including a pre-treatment unit, a biological treatment unit, a tertiary treatment unit, and ultimately, a recycling and discharge unit.
4. **Reclaimed Water Recycling:** The recycling phase involves repurposing water that meets the required discharge standards following its three-level treatment. Primarily, this reclaimed water is employed for irrigating the campus lawns and trees and serves as the water source for Mingxiu Lake. This initiative contributes to a significant water savings of up to 40%.
5. **Water-Saving Equipment:** To meet our water conservation objectives, we have implemented several water-saving measures. These include the installation of water mist devices on faucets, resulting in a remarkable 40% reduction in water consumption. Additionally, our urinals are equipped with induction technology, allowing for an efficient water-saving rate of approximately 30%. Moreover, our toilets employ a dual-flush system, which permits users to adjust flushing based on specific requirements, thereby contributing to our water-saving goals.