TIMES HIGHER EDUCATION IMPACT RATINGS

SDG 6.3.2

Preventing water system pollution

6 CLEAN WATER AND SANITATION

Water Technology and Management Policy (SUS-12)

The University of Sharjah's Water Technology and Management Policy (SUS-12) establishes procedures related to water pollution prevention, maintenance, reporting, and water treatment.

Water System Maintenance and Pollution Reporting

The policy requires regular inspections and maintenance of plumbing systems, including water tanks, pipes, and taps. It also requires any water leakage or pollution to be reported to the Facilities Management and Planning Department (FMPD) maintenance department.

Water Treatment and Reuse

The policy includes procedures for treating water before reuse. These include the treatment of ablution water for irrigation, filtration and treatment of collected rainwater, and the use of reverse osmosis systems with sediment, carbon, and membrane filtration.

Prevention of Rainwater Contamination

The policy specifies the use of non-toxic, food-grade rooftop coatings to prevent chemical contamination of rainwater runoff. It also requires first-flush valves to divert the initial 10 minutes of rainfall, which may contain dust and bird droppings, before directing water into storage. Collected rainwater is treated using pressure sand filtration and chlorination before general use or irrigation.

جامعة الشارقة UNIVERSITY OF SHARJAH	Policy Main Title	Sustainability	Effective Date	10/09/2015
	Policy Subject	Water Technology and Management	Last Review date	28/04/2026
	Policy Number	SUS-12	Next Review date	10/05/2026
	Responsible Entity	Sustainability Office	Approved By	Chancellor

Overview

Water technology and management are considered a high priority for UoS to sustain the water resources. UoS, in collaboration with SEWA, adopted the most updated technology for water supply and treatment via data and circular engineering. This policy outlines the main procedures for the reservation of water consumption and water cycle management using smart technologies and crucial economic principles.

Scope

This policy applies to university buildings, facilities management, faculty, staff, students, and visitors. It also covers water use in research, landscaping, and operational activities.

Purpose

The main purpose of this policy is to:

- Promote water conservation and efficiency.
- Reduce water waste and pollution.
- Implement innovative water-saving technologies.
- Align water management practices with sustainability goals.
- Ensure compliance with environmental regulations.

Abbreviations and Definitions

Water Conservation: Strategies and activities aimed at reducing water use.

Greywater Recycling: The reuse of wastewater from sinks and showers for non-potable purposes.

SEWA: Sharjah Electricity and Water Authority.

UoS: University of Sharjah.

FMPD: Facilities Management and Planning Department.

Policy

- The university is committed to responsible water management by implementing efficient water use practices, promoting water conservation, and investing in innovative water technologies.
- The university commits to sustainable water management by reducing consumption, improving efficiency, and promoting awareness of water conservation.
- The UoS is committed to achieving water management via the adoption of advanced water technologies and systems.

Procedures

1. General Procedures for Water Management

- Conduct regular water audits and monitoring.
- Implement water-efficient fixtures and technologies.

- Promote water conservation education and awareness.
- Explore alternative water sources such as rainwater harvesting and greywater recycling.
- Ensure compliance with water-related sustainability standards.
- Regular inspection and maintenance of plumbing systems to prevent leaks and water wastage must be done.
- Water-efficient fixtures, such as low-flow toilets, faucets, and showerheads, should be utilized.
- Smart irrigation systems and landscape design that minimizes water consumption for outdoor areas should be utilized.
- Reuse of water for non-potable purposes, such as landscaping and cleaning, must be encouraged

2. Smart Technologies and Infrastructure

- The Sustainability office at UoS shall implement smart sensors and AI-powered flow monitoring across all UoS facilities. The Smart system and AI-Driven Leak Detection can lead to saving an overall 30 % of water consumption among all facilities.
- The Students' Dorms, Faculty housing, green areas, and Mosques must be supported and equipped with Smart metering to provide real-time water consumption data.
- Any new building or replacement of the entire old water system should exclusively install a high-efficiency system and smart system, which can lead to less water consumption.

3. Culture of Saving Water

- **Control Waste of Water and quality of using via:**
  - Conducting regular maintenance for all water tanks, pipes, and taps.
  - Replacement of the regular valve with an automatic shut-off valve for all facilities to discover any leakage at an early stage.
  - Direct reporting for any leakage to the FMPD maintenance department.
  - Conducting regular workshops about the importance of saving water and protecting the water resources.
  - Open the tap once you need water.
  - Close the tap directly after finishing.
  - Report any leakage or pollution of water to the maintenance department

- **Economically using tap water via:**
  - Installing sensors in washrooms. Any leak should be detected, and the tap should be closed directly.
  - Installing a water sprayer in all taps in the washrooms and mosques.
  - Using Landscaping and Irrigation Management System.

- **Re-use Water**
  - Reusing ablution water for the plants surrounding the mosques after simple treatment.
  - Reusing water collected from the AC condensate, High-quality distilled water produced by air conditioning units during cooling.
  - Reusing collected rainwater after filtration and treatments.

- **Re-use empty water bottles and decrease the use of Plastic Bottles**
  - The University of Sharjah is planning to distribute water coolers in all colleges, which will reduce the use of plastic water bottles.
  - Encourage individuals to use the reusable water bottle instead of disposable plastic ones.
  - Collaborate with BEEAH groups to collect empty bottles for recycling.

4. Alternative Water Sourcing

- **Water Dispenser from Air**
  - Identify the number of AC units and their locations.
  - Deploy Atmospheric Water Generators (AWG). These machines pull moisture from the air, condense it, and pass it through a carbon and UV filtration system.
  - Connect AWG units to solar panels to create "Zero-Carbon Water" by using renewable energy to extract water from the air.
  - Connect the dispensers to the Electronic System to track production volume and mineral content.

- **Water dispenser with Reverse Osmosis(RO) System**
  - Install RO dispensers in faculty lounges, student centers, and Sustainable Labs.
  - Ensure the system includes Sediment Filter (Removes dust/rust), Pre-Carbon Filter (Removes chlorine), RO Membrane (Removes heavy metals/fluoride), Post-Carbon Filter (Polishes taste), and Remineralization (Adds healthy Calcium/Magnesium back to the water).

- **Treating rainwater**
  - Treat the university rooftops with non-toxic, food-grade coatings to ensure the runoff water isn't contaminated by roofing chemicals.
  - Install filtration valve. These valves automatically discard the first 10 minutes of rainfall (which carries dust and bird droppings from the roof) before directing the clean water into storage.
  - Install water tanks and storage to collect rainwater.
  - Direct the water into underground tanks.
  - Use a simple Pressure Sand Filter and Chlorination to make the water safe for general use or irrigation.
  - If storage is full, use "Infiltration Trenches" to direct excess rainwater into the ground to recharge the local water table rather than letting it flow into the sea or sewer.