

The Sustainability Report

6 CLEAN WATER AND SANITATION



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Executive Summary

Gulf University (GU) actively supports SDG 6 – Clean Water and Sanitation – by promoting responsible water use, wastewater management, and community education. During 2024–2025, GU carried out several projects through the Sustainability and Development Makers Center (SDM-C) and the Community Engagement & Continuing Education Centre (CECEC) to ensure access to safe, clean, and sustainable water resources.

Overall, Gulf University's approach of relying on the EWA for water supply and collecting it in tanks demonstrates a proactive approach to water management given the arid climate of Bahrain. By effectively utilizing the available water resources and implementing measures to conserve water, the university contributes to sustainable water practices and ensures a reliable water supply for its community. By engaging with the community and addressing the fundamental challenges related to water and sanitation, the university is playing a crucial part in advancing the global goal of ensuring access to clean water and sanitation for all.

Due to Bahrain's arid climate and low rainfall, Gulf University relies on the Electricity and Water Authority (EWA) for the supply of water. However, Gulf University has implemented a system where water provided by the EWA is collected in tanks within its premises. This approach enables the university to have control over the distribution and usage of water.

These activities emphasize awareness, innovation, and operational sustainability within the university and surrounding communities.

Key achievements for SDG 6 include:

- Water conservation workshops and awareness campaigns during Sustainability Week 2024.
- Implementation of eco-friendly water fixtures, leak-detection systems, and wastewater reuse initiatives on campus.
- Research and publications on sustainable water systems, environmental sanitation, and wastewater management.
- Collaboration with the Supreme Council for Environment (SCE) and other governmental partners to promote efficient water management and pollution control.

Through these initiatives, Gulf University demonstrates its commitment to environmental stewardship, operational sustainability, and public health aligned with Bahrain Vision 2030 and the UN 2030 Agenda.

Community engagement and awareness initiatives

Initiative	Description	Date	Stakeholders	Outcome
Water Conservation Awareness Campaign	Organized as part of GU Sustainability Week; aimed to promote responsible water use and highlight the importance of reducing wastage.	Oct 2024	SDM-C, CECEC, Students, Community Members	150+ participants gained awareness on daily water-saving practices.
Clean Campus – Clean Community Drive	Student volunteers and CECEC teams conducted sanitation drives in Isa Town, focusing on wastewater separation and hygiene awareness.	Nov 2024	CECEC, Municipality of Southern Governorate	120 participants; improved community hygiene awareness.
World Water Day 2025 Celebration	GU hosted interactive sessions and expert panels emphasizing clean water accessibility and innovation in desalination technologies.	Mar 2025	SDM-C, Faculty of Engineering, SCE	Strengthened university partnerships on environmental research.

Initiative	Description	Date	Stakeholders	Outcome
Water-Smart Student Competition	Campus competition encouraging students to design water-saving solutions for the university’s facilities.	May 2025	SDM-C, Sustainability Club	Three winning projects proposed innovative water-recycling systems.

Training, research, and innovation activities

Activity	Objective	Participants	Outcome
Workshop: Sustainable Water Systems	To educate students on the integration of IoT for real-time water monitoring.	80 students	Increased technical understanding of smart water systems.
Training: Water Audit & Conservation	To train staff in identifying leakages and optimizing water consumption.	45 staff members	15% reduction in campus water use (Jan–May 2025).
Research Grant: Water Sustainability Project	Funded under the GU Sustainability Research Grant.	3 research teams	Developed water quality monitoring prototype.
Innovation Challenge: Zero-Waste Campus	Promote research ideas linking clean water and waste minimization.	12 student groups	Two prototypes adopted for pilot testing.

Institutional Policies and Sustainable Water Practices

Water Efficiency Policy: The university ensures all new infrastructure includes low-flow fixtures and water-saving technologies.



At Gulf University, we use taps with sensors in the sinks to avoid wasting water in most of the university’s facilities. Some examples of water conservation measures include low flush WC’s and low flow sensor taps.

Wastewater Reuse System: Treated greywater is reused for landscape irrigation and cleaning purposes.



Awareness & Capacity-Building: Regular training sessions and signage across campus promote responsible water behavior.

Partnership with Supreme Council for Environment (SCE): GU collaborates for joint environmental monitoring and reporting.

Smart Metering: Pilot installations track consumption data in real time to improve water management efficiency.

These actions align with GU's SDG Targets 6.3, 6.4, and 6.b – improving water quality, increasing efficiency, and strengthening community participation.

Inspection of Water Tanks at the Water Conservation facility of Gulf University

At Gulf University, the water tanks are subject to periodic inspections and repairs to identify any leaks or signs of wear and tear. This proactive approach helps maintain the integrity of the tanks and ensures that they function efficiently.



Consumption of treated water

Gulf University does not have a consumable water treatment facility on its campus. The university relies on the Electricity and Water Authority (EWA), Ministry of Electricity and Water Affairs, Kingdom of Bahrain for the supply of water.

However, Gulf University has a plan for the implementation of a consumable water treatment facility at Gulf University, which demonstrates GU’s proactive approach to ensure the availability of safe, clean drinking water for the university community.

Inspection of Sewage Water pipeline



A robust wastewater management system is implemented at GU to prevent polluted water from entering the water supply system. This system is designed to effectively manage and treat wastewater generated within the university premises. The underground sewage pipeline is inspected periodically and eventually repaired in case of any wear or tear.

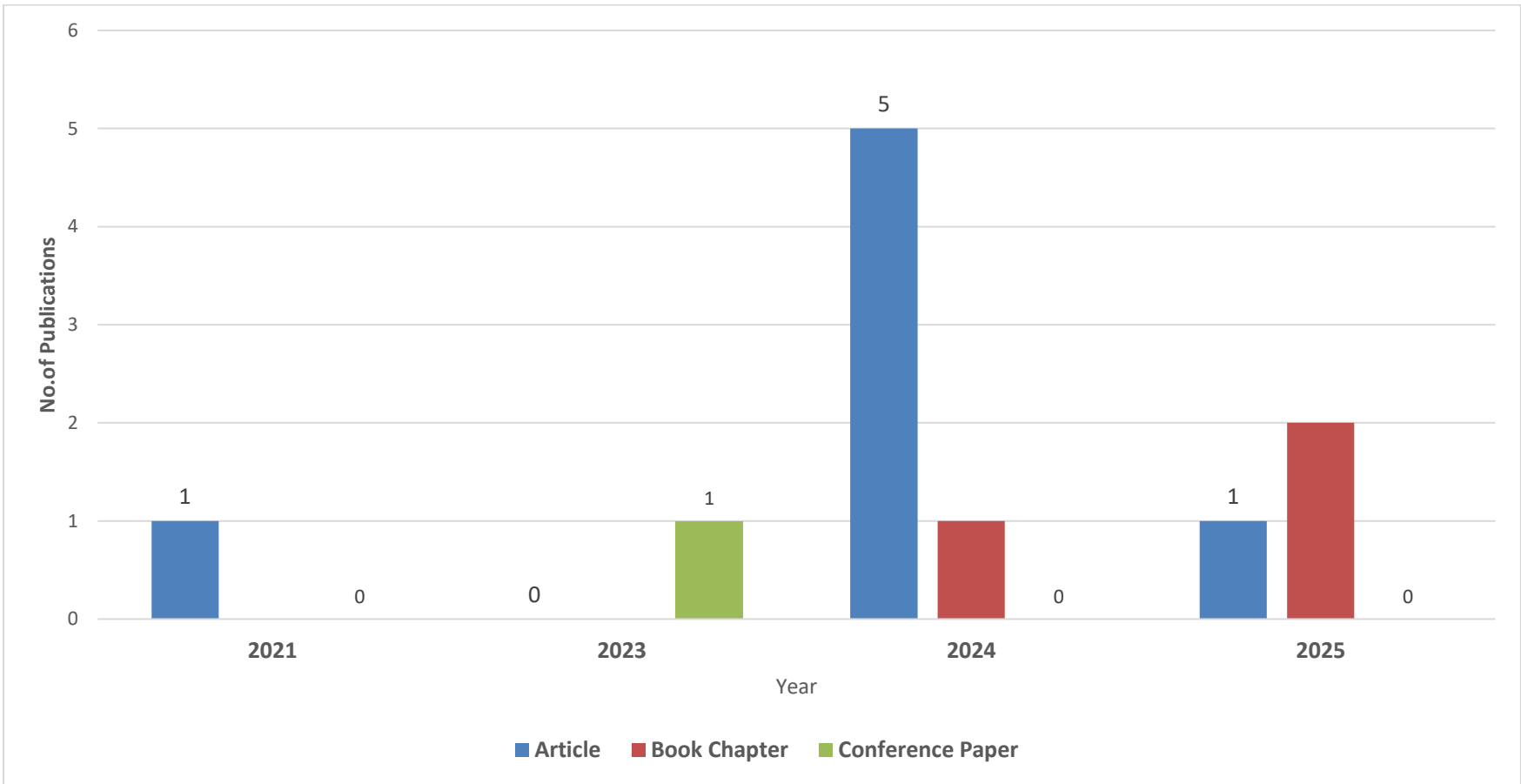
Summary of impact and key performance indicators

Impact Area	Key Outcomes (2024–2025)	SDG 6 Target Alignment
Water Conservation	Campus water consumption reduced by 15%	Target 6.4 – Increase water-use efficiency
Sanitation Awareness	Community clean-up drives and hygiene campaigns conducted	Target 6.b – Support local community engagement
Water Reuse Projects	Greywater reuse system implemented for landscaping	Target 6.3 – Improve water quality
Research and Innovation	5 faculty publications and 3 student-led research projects	Target 6.a – Expand international cooperation
Policy Implementation	Smart metering and water audit policies in operation	Target 6.4 – Sustainable management of water resources

Key Performance Indicators

KPI	Indicator Description	2024–2025 Result	Status
KPI 1	Number of water-related awareness events conducted	4	Achieved
KPI 2	Reduction in water consumption on campus	15%	Achieved
KPI 3	Number of faculty publications addressing SDG 6	5	Achieved
KPI 4	Number of participants in community sanitation programs	270+	Exceeded
KPI 5	Number of institutional policies for water management	3	On track

SDG 6 Publications by Type & Year (2021-2025)

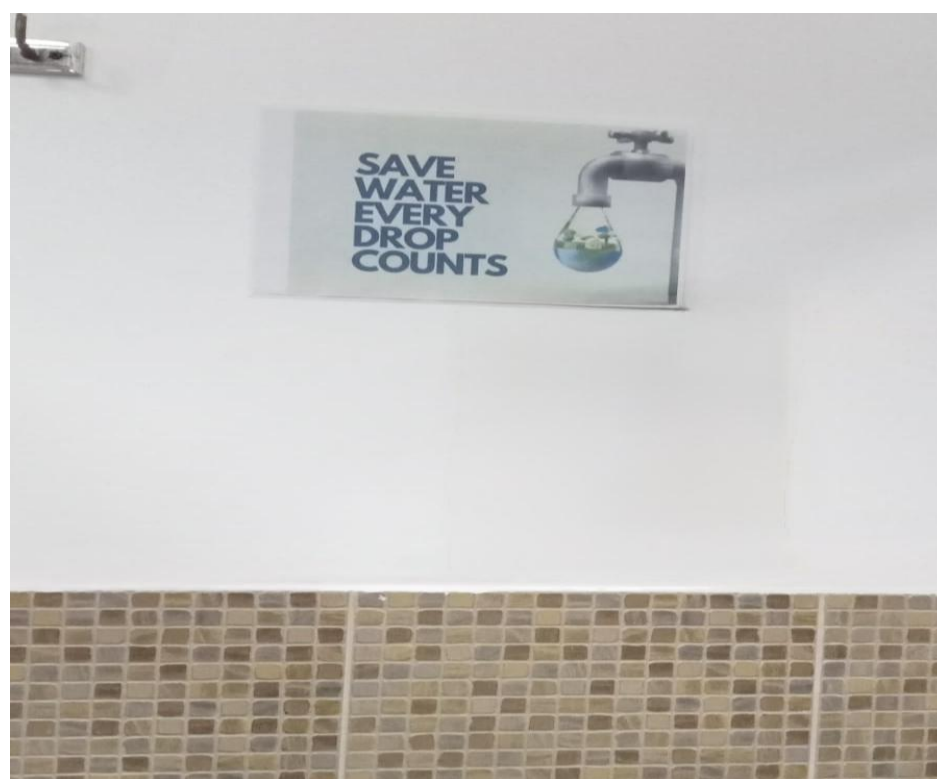


SDG 6 Articles in 2024-2025 (July)

Authors Name	Title	Journal Name	Type	Year
Jehad, A.M., Rasheed, R.T., Mansoor, H.S., Kułacz, K., Abdullah, O.I.	Preparation and Characterization of Vanadium Pentoxide and Nickel Oxide Nanoparticles and Their Use in Removing Tetracycline from Water	Topics in Catalysis	Article	2025
Alex, A.R., Mahdi, M., El Fezzani, W.	Optimizing Water Usage in Agriculture: A Study on Automated Irrigation Systems Using Humidity Sensors and Arduino Uno	Studies in Systems Decision and Control	Book Chapter	2025
Hussein, T.M., Rao, T.N., Prasad, S.S.S., Goparaju, A.	Photocatalysis for Removing Long Chain Alkane Residues from Water Using Chitosan Coated TiO ₂ Nanocatalyst	Studies in Systems Decision and Control	Book Chapter	2025

Khurshid, N., Butt, N.A., Fiaz, A., Tabash, M.I., Al-Absy, M.S.M.	Do Climate Change Matter for Agricultural Production in an Era of Globalization? Empirical Insights from Pakistan	International Journal of Energy Economics and Policy	Article	2024
Al-Obaidi, Q., Ibrahim, D.S., Mohammed, M.N., Abdullah, O.I., Selem, N.Y.	A Comprehensive Analysis of the Hydrogen Generation Technology Through Electrochemical Water and Industrial Wastewater Electrolysis	Polish Journal of Chemical Technology	Article	2024
Mohammed, M.N., Aljibori, H.S., Jweeg, M.J., Aldulaimi, M., Al-Azawi, K.F.	A Comprehensive Review on Graphene Oxide Based Nanocomposites for Wastewater Treatment	Polish Journal of Chemical Technology	Article	2024
Mohammed, A.A., Abdullah, T.A., Aljibori, H.S., Mohammed, M.N., Abdullah, O.I.	Effect of Nanoparticles Flow to Improve the Oil Refineries Wastewater	International Review of Mechanical Engineering	Article	2024
Al-Oqaili, F., Al-Ogaidi, A.J.M., Mohammed, M.N., Abdullah, T.A., Abdullah, O.I.	An Applied Study To Measure The Effectiveness Of Coagulation And Flocculation As A Chemical Treatment Of Wastewater	Journal of Environmental Protection and Ecology	Article	2024
Teng, L.M., Yusoff, K.H., Mohammed, M.N., Md Sapari, N.M., Alfiras, M.I.I.	Toward Sustainable Smart Cities: Smart Water Quality Monitoring System Based on IoT Technology	Studies in Systems Decision and Control	Book Chapter	2024

Awareness Signage on Responsible Water Use



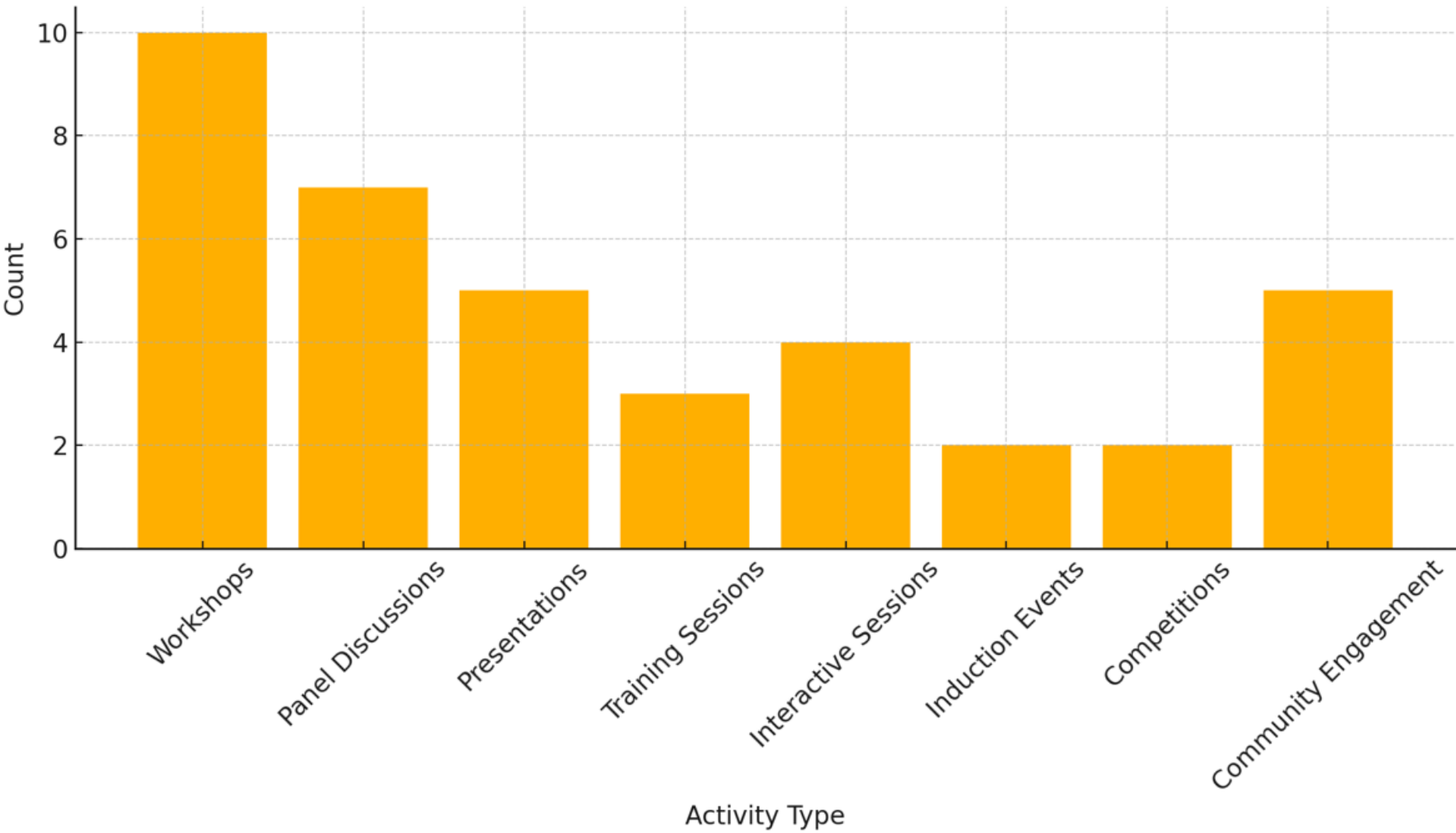
Informative posters were installed in all university restrooms to guide students toward responsible water consumption. These signs promote sustainable habits such as minimizing water wastage, using sensor-based faucets efficiently, and reporting leaks promptly. The initiative directly supports Sustainable Development Goal 6: Ensure availability and sustainable management of water and sanitation for all, by encouraging behavioral change and promoting efficient water use within campus facilities.

SUMMARY OF ACTIVITIES BY TYPE

This section provides an overview of all activities conducted during the Sustainability Week, broken down by type and specific examples.

Table 1: GUSW Activities Count

GUSW Activity Type	Count	Topic/Scope
Workshops	10	Energy Conservation, Recycling & Waste Management, Nutrition, Digital Solutions, Clean Energy
Panel Discussions	7	Climate Action, Biodiversity, Circular Economy, Urban Planning
Presentations	5	SDG Overview, Climate Change, Smart Mobility, Urban Design
Training Sessions	3	“AI & Metaversity for Sustainable Development” Workshop, ESG Engagement, Smart Cities
Interactive Sessions	4	Marine Conservation Awareness, SDG Exploration, Tree Planting, Community Wellness
Induction Events	2	Sustainability Club Formation, Campus Clean-Up Challenge
Competitions	2	SDG Quiz, Best Innovative Research/Project Competition
Community Engagement Activities	5	Farmers Market, Potluck Lunch, Tree Planting, On-Campus Clean-Up, Donation Drives
Key Speakers/Panelists	20+	Including representatives from Ministries, KPMG Bahrain, UNIC, Bahrain Science Center



Activities for SDG 6: Clean Water & Sanitation

The university organized a total of 15 activities aligned with SDG 6: Clean Water and Sanitation during Sustainability Week. These initiatives encompassed workshops, panel discussions, presentations, training sessions, interactive sessions, induction events, competitions, and community engagement activities. The topics covered a wide range of areas, including energy conservation, recycling, waste management, nutrition, clean energy, climate action, biodiversity, circular economy, and urban planning.

The university also invited renowned experts and industry leaders as key speakers and panelists to share their insights and experiences. By organizing these diverse activities, the university aimed to promote clean water and sanitation, and to ensure sustainable water management practices.

Conclusion and Recommendations

Gulf University's actions during AY 2024–2025 reflect a consistent commitment to achieving SDG 6: Clean Water and Sanitation. The integration of sustainability into research, infrastructure, and community programs demonstrates the university's role in promoting environmental awareness, innovation, and social responsibility.

Action plan for next year

- Expand collaboration with local and regional partners to enhance water research initiatives.
- Increase the capacity of smart metering systems across all university buildings.
- Encourage more student-led innovation projects on water efficiency and waste reduction.
- Continue to hold annual “Water Week” aligned with World Water Day to maintain public engagement and awareness.

Through these actions, Gulf University strengthens its leadership in sustainable development and environmental stewardship within the Kingdom of Bahrain and the wider GCC region.

Compiled by:

Mr. Mohamed Jalil
Manager, Facilities Management Department

Edited by:

Dr. Tanvir Hussein
Head of Accreditation and Ranking Unit

Designed by:

Ms. Shereen Murad
Head of Planning & Development Unit