



University : UzSWLU

Country : Uzbekistan

Web Address: <https://www.uzswlu.uz/en>

[4] Water (WR)

4.6 ICT-Based Planning, Implementation, Monitoring, and Evaluation of Water Management Programs (UzSWLU, 2024–2025)

The Uzbekistan State University of World Languages (UzSWLU) has implemented a fully integrated ICT-based water management and monitoring system that supports planning, implementation, and evaluation of all water-related sustainability programs.

This system ensures data-driven decision-making, transparency, and continuous improvement in line with the university's *Smart Campus Initiative (Order No. 17/2023)* and *Digital Sustainability Roadmap 2025*.

1. ICT Integration in Water Planning and Infrastructure

All water consumption, treatment, and efficiency initiatives at UzSWLU are managed through an integrated digital platform developed jointly by the Technical Department and the Green Office. The platform includes:

- Smart Flow and Pressure Sensors installed in 9 key campus areas (main academic buildings, dormitories, and cafeterias).
- Digital meters for real-time monitoring of total and treated water use.
- Cloud-based dashboard that records hourly consumption and automatically generates monthly reports.
- Predictive analytics module that identifies potential leaks and inefficiencies using historical data.

This ICT network directly connects the physical water infrastructure to the **Green Office Dashboard**, enabling automatic tracking and performance analysis.

2. Digital Monitoring and Data Collection

The university's water monitoring system collects and analyzes data from multiple sources:

- Sensors and meters record flow, pressure, and consumption in real time.
- Data visualization dashboards display performance trends, leak alerts, and efficiency comparisons between buildings.
- QR-coded maintenance logbooks allow staff to update and verify system status using mobile devices.
- Monthly digital reports are shared with the Rector's Office and Department of Facilities Management for review and policy updates.

All data are securely stored on the university's intranet server and accessible to the Green Office for sustainability audits.



3. ICT-Supported Implementation and Maintenance

ICT tools are used at every stage of program implementation:

- Google Workspace and MS Teams platforms support inter-departmental coordination for water-related projects.
- The “GreenMetrics” internal portal allows uploading of photos, reports, and water usage charts directly from each campus site.
- Automatic SMS and email alerts are sent when anomalies are detected (e.g., unusual consumption spikes or low-pressure warnings).
- Field staff use mobile tablets to record inspections, leak repairs, and cleaning activities in real time.

This has reduced average response time to water leakage issues by 40% and improved data accuracy across all monitoring points.

4. Evaluation and Performance Review

- Monthly and quarterly data summaries are automatically compared with historical baselines (2021–2023).
- **Key Performance Indicators (KPIs)**—such as water efficiency ratio, treated water percentage, and leakage frequency—are visualized in dashboard charts.
- The system enables the university’s **Sustainability Committee** to evaluate the impact of each initiative and allocate resources more effectively.
- Annual results are integrated into the *Sustainability Report 2025* and directly submitted to UI GreenMetric via the online platform.

5. Results and Measurable Outcomes

Indicator	2023–2024	2024–2025	Improvement
Digital monitoring coverage	60% of campus buildings	100% coverage	+40%
Response time to leak alerts	5.2 hours	3.1 hours	–40%
Data accuracy (error rate)	8%	<3%	–5%
Number of smart sensors	5	9 units	+4
Reports generated and reviewed	12	24	+100%
ICT-based maintenance reports logged	215	326	+52%

These outcomes demonstrate a strong digital governance framework that ensures efficient, transparent, and sustainable water management operations.

- **SDG 6:** Clean Water and Sanitation – data-driven water efficiency.
- **SDG 9:** Industry, Innovation, and Infrastructure – smart campus technologies.
- **SDG 11:** Sustainable Cities and Communities – digitalized infrastructure.
- **SDG 12:** Responsible Consumption and Production – real-time monitoring for efficiency.
- **SDG 13:** Climate Action – reducing waste through predictive analytics.



Additional evidence link (i.e., for videos, more images, or other files that are not included in this file):