Azerbaijan TECHNICAL University



Report on Sustainable Development Goal 6

Clean Water and Sanitation

2025



Foreword

Azerbaijan Technical University remains steadfast in supporting the United Nations' Sustainable Development Goal 6 (SDG 6), which prioritizes clean water and sanitation. In 2025, the university continues to advance sustainable water practices through modern infrastructure, strategic collaborations with national and regional agencies, and educational programs that promote water conservation. With enhanced quality control for drinking water, innovative irrigation and water reuse systems, and curricula emphasizing efficient water management, AzTU not only meets its campus water needs sustainably but also fosters environmental responsibility among students and the wider community. This report highlights these initiatives, reflecting the university's ongoing commitment to a sustainable water future for Azerbaijan.

Introduction

AzTU's commitment to SDG 6 is part of its Strategic Plan (2022–2025), which aligns with Azerbaijan's National Sustainable Development Agenda.The university integrates water and sanitation management principles into both its operational infrastructure and educational programs. In 2025, AzTU further expanded its campus-level initiatives on **wastewater treatment, water reuse, and student engagement in environmental innovation projects**.These actions complement earlier achievements in 2023–2024, including:

- Modernization of the university's internal water pipeline network;
- Installation of smart water meters in key academic buildings;
- Integration of water sustainability topics into engineering curricula.

The Quality Assurance Department monitors all university activities under the SDG framework to ensure transparency, efficiency, and measurable outcomes.

References

National Information Portal on Sustainable Development Goals of the Republic of Azerbaijan AzTU AzTU SDG 6 Report / November 2023

AzTU SDG 6 Report 2024

A Meeting with UN Experts

Plastic Pollution Awareness and Bioplastic Production Workshop Ecological Thinking Begins at School – Green Mission at AzTU

AI in Precision Agriculture Workshop

Collaboration with Malatya Turgut Özal University Collaboration with Holon Institute of Technology

SDG 6 - Clean water and sanitation

Clean Water and Sanitation	Sustainable Water Management	Water Conservation	Water Quality Monitoring
Safe Drinking Water	Wastewater Treatment	Water Recycling and Reuse	Water-Use Efficiency
Integrated Water Resources Management	Water Resource Management	Water Infrastructure Modernization	Smart Water Management
Water Purification Technologies	Advanced Filtration Technologies	Water Desalination	Renewable Energy-Powered Desalination
Wastewater Optimization	Rainwater Harvesting	Smart Irrigation Systems	Artificial Intelligence in Precision Agriculture
IoT-Based Water Monitoring	Sustainable Water Technologies	Water-Related Research and Innovation	Nanotechnology-Based Water Purification
Water Pollution Prevention	Water Sustainability Education	Water Conservation Awareness	Water-Efficient Infrastructure
Water Research Collaboration	Sustainable Water Resource Management	Water-Efficient Technologies	Sustainable Water Infrastructure

SDG 6 Targets

- **Safe and Affordable Drinking Water:** The university ensures a reliable supply of clean drinking water and monitors water quality to protect campus health.
- **Improve Water Quality and Wastewater Treatment:** In partnership with the State Agency for Water Resources, wastewater is treated offsite, while the university minimizes water waste through efficient irrigation and management practices.
- **Increase Water-Use Efficiency:** Water conservation efforts include the use of droughtresistant plants and advanced irrigation systems to reduce water loss on campus.
- **Integrated Water Resources Management (IWRM):** IWRM principles are taught in Environmental Engineering courses, promoting sustainable practices among students.
- **Expand International Cooperation:** The university collaborates with local and international bodies, including the UN, on water security projects, fostering capacity-building and sustainable development.
- **Strengthen Local Community Involvement:** Through educational outreach and community events, the university engages local communities in discussions and initiatives around responsible water use.

Statistics and Their Indicators

Indicator	2023	2024	2025	Change (2024→2025)
Total campus water consumption (m^3/year)	78 000	71 500	66 400	−7.1 %
Percentage of water reused	45 %	48 %	62 %	+14 pp
Wastewater treated before discharge	72 %	81 %	89 %	+8 pp
Water quality meeting WHO standards	87 %	90 %	93 %	+3 pp
SDG 6-related student projects	22	27	34	+25.9 %
Students reached through campaigns	420	560	710	+26.8 %
Research publications on water/sanitation	4	5	6	+20 %
Partner institutions in SDG 6 cooperation	6	9	12	+33 %

Positive Impact on Other SDGs

AzTU's progress under SDG 6 has also generated cross-cutting benefits contributing to several other Sustainable Development Goals:

- **SDG 4 (Quality Education):** Through workshops, conferences, and student engagement programs, AzTU enhanced environmental literacy and research capacity among youth.
- **SDG 7 (Affordable and Clean Energy):** Renewable energy–powered desalination and smart water management systems supported clean energy integration in campus operations.
- **SDG 9 (Industry, Innovation, and Infrastructure):** Collaborative research with international partners strengthened innovation ecosystems in sustainable technologies.
- **SDG 12 (Responsible Consumption and Production):** Water reuse and waste minimization initiatives promoted efficient resource use within the university community.
- **SDG 13 (Climate Action):** Improved water management and reduced wastage contributed to greater climate resilience and sustainable resource planning.

Current Situation

1. Water Infrastructure Modernization

In 2025, AzTU completed the modernization of its campus wastewater treatment facilities, leading to a 7.1% reduction in total water wastage compared to 2024.

Smart monitoring systems were introduced in dormitories and laboratories, ensuring accurate leak detection and efficient use.

Rainwater harvesting systems were installed in two academic buildings, meeting 15% of the campus's non-potable water demand. (related: A Meeting with UN Experts)

2. Water Reuse and Environmental Awareness

The proportion of reused water increased from 48% in 2024 to 62% in 2025, owing to improved filtration and recycling systems.

Educational activities such as the *Plastic Pollution Awareness and Bioplastic Production Workshop* and *Ecological Thinking Begins at School – Green Mission at AzTU* engaged more than 700 students and staff members.

These initiatives contributed directly to SDG 6.3 (reducing pollution) and 6.6 (protecting water-related ecosystems).

3. Research and Innovation

AzTU researchers advanced innovative technologies for water purification and sustainable agriculture. The project *Artificial Intelligence in Precision Agriculture* developed algorithms for optimizing irrigation systems using real-time water-efficiency data (source).

Joint research with Malatya Turgut Özal University and the Holon Institute of Technology resulted in prototype desalination systems powered by renewable energy sources.
Six peer-reviewed papers were published in 2025 focusing on nanotechnology-based purification methods and wastewater optimization.

4. **Partnerships and Community Engagement**

AzTU expanded its partnerships in 2025, signing new memoranda with local and international institutions to promote SDG 6 awareness.

The university co-organized the *2nd National Conference on Sustainable Water Technologies*, hosting 30 presentations by researchers and practitioners.

Community projects such as *Water Sustainability Awareness Days* were implemented in secondary schools to strengthen youth participation in environmental protection.

Future goals

1. **Expand Smart Water Management**

Deploy IoT-based campus monitoring systems to achieve 25% further reduction in water loss by 2027.

2. **Establish Regional Water Research Center**

Develop a joint SDG 6 Innovation Hub with UNDP and national agencies.

3. **Promote Circular Water Use**

Increase wastewater reuse to 80% by 2030 through advanced filtration and greywater recovery.

4. **Integrate Water Sustainability in Curricula**

Launch elective courses on "Hydrology and Sustainable Infrastructure" across engineering programs.

5. **Strengthen Community Partnerships**

Extend *Green Mission* outreach to 10 additional schools and municipalities by 2026.

Conclusion

In 2025, Azerbaijan Technical University further strengthened its commitment to sustainable water management and environmental responsibility.

By upgrading infrastructure, expanding research, and promoting awareness among students and staff, AzTU made tangible progress toward achieving SDG 6.

The university's commitment to innovation and cross-sector collaboration continues to support Azerbaijan's transition toward a greener, more resource-efficient future.