

Sustainable KTU

SUSTAINABILITY REPORT 2024

6 CLEAN WATER AND SANITATION



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Sustainable development is not only a global vision, but also a shared responsibility that our country bears towards future generations. In this sense, the Sustainable Development Goals (SDGs) set by the United Nations, Turkey's 11th and 12th Development Plans, the Green Deal Action Plan, and the Higher Education Council's sustainability vision form a roadmap for higher education institutions.

As Karadeniz Technical University, we consider it our primary duty to contribute to these goals in line with our mission of education, research, and community service. Our university produces science-based knowledge, develops policies, and implements projects in interaction with the community across a wide range of areas, from quality education to climate action, from poverty reduction to the construction of innovative and sustainable cities.

In line with our country's national policies, our university leads regional development and assumes global responsibility through international collaborations, while also aiming to educate our students to become conscious individuals for a sustainable future. The report prepared in this context reflects not only the activities carried out but also our university's determination on its sustainability journey.

Our belief in the future is strengthened by the guidance of science and the dynamism of our youth. Karadeniz Technical University will continue to contribute to sustainable development goals and support our country's vision in this area.

Prof. Dr. Hamdullah ÇUVALCI
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6 CLEAN WATER AND SANITATION



Access to clean water and adequate sanitation is vital for protecting human health, supporting environmental sustainability, and improving quality of life. The sixth Sustainable Development Goal (SDG 6: Clean Water and Sanitation), as defined by the United Nations, aims to ensure the availability and sustainable management of water and sanitation for all by 2030. This goal encompasses multiple dimensions, including safe access to water, wastewater management, protection of water resources, and water conservation.

Higher education institutions play a significant role in achieving SDG 6 through scientific research, technological development, and raising societal awareness. Universities serve as role models and contribute to public policies both through sustainable water management practices on their campuses and through their education and research activities.

Karadeniz Technical University (KTU) prioritizes environmental and social sustainability as part of its institutional agenda and implements various strategic initiatives in line with SDG 6. These initiatives include improving campus water infrastructure, implementing practices to enhance water efficiency, providing educational programs to raise hygiene awareness, and conducting research through collaborative partnerships. This report aims to make KTU's contributions in the field of clean water and sanitation visible by addressing the policies, practices, and impacts implemented throughout 2024 in line with SDG 6. Additionally, it documents how the university assumes its environmental responsibilities and promotes societal awareness through its activities.



Institutional Structure

Karadeniz Technical University (KTU) has developed a multi-stakeholder institutional structure to support SDG 6: Clean Water and Sanitation within the framework of the United Nations Sustainable Development Goals (SDGs). This structure focuses on the sustainable management of water resources, improvement of sanitation practices, and raising environmental awareness.

Within this framework:

- The Environmental Issues Application and Research Center conducts interdisciplinary scientific research on topics such as water pollution, treatment technologies, and ecosystem health, producing regional solutions.
- The Department of Construction and Technical Affairs is responsible for managing technical processes such as campus-wide water infrastructure, drinking water systems, maintenance and repair activities, and digital monitoring systems, playing a critical role in ensuring sustainable water supply and sanitation infrastructure continuity.

Through these institutional mechanisms, KTU not only implements and monitors water and sanitation practices on campus but also supports sustainable water and sanitation management at the societal level.



Environmental Problems Application and Research Center

KTU has a research center that coordinates the university's scientific activities in the field of environment and sustainability <https://www.ktu.edu.tr/cevreuam>. The KTU Environmental Issues Application and Research Center conducts interdisciplinary research and applications on environmental topics. Within the center, various working groups have been established; for example, the Watershed and Water Resources Working Group focuses on the management of water resources and watershed planning.

The center carries out studies that directly contribute to the sub-goals of SDG 6, particularly "improving water quality" and "sustainable management of water resources." Specifically, through the Watershed and Water Resources Working Group, research is conducted on the protection of aquatic ecosystems, the impact of urban infrastructure on water, and regional water scarcity issues. In this context, the center supports the technical foundation of SDG 6 implementation through scientific data.

Department of Construction and Technical Affairs

The Department of Construction and Technical Affairs is the technical unit responsible for the planning, construction, maintenance, and operation of KTU campus infrastructure. Within the framework of SDG 6, this unit carries out critical tasks, including:

- Operating water wells and performing maintenance and repairs on piping systems,
- Maintaining and repairing water reservoirs, pumping stations, and distribution lines,
- Conducting maintenance and repairs of water and sanitary installations in buildings,
- Monitoring and controlling water tanks, chlorination units, chlorine levels, and chlorine dosing,
- Inspecting and monitoring water wells,
- Maintaining and repairing taps, toilets, and sinks in campus buildings,
- Identifying, procuring, delivering, and tracking materials and equipment required for operations,
- Repairing malfunctions in the central campus wastewater systems.

By ensuring that the campus has a safe and sustainable water and sanitation infrastructure, the unit directly contributes to the technical infrastructure components of SDG 6.

2As of 2024, KTU has implemented a digital Fault and Maintenance Monitoring System called the Support Management System (DYS) in line with its goal of establishing a sustainable campus infrastructure. This system allows rapid and systematic detection, recording, and management of faults related to campus water installations, hygiene infrastructure, wastewater systems, taps, toilets, and cleaning areas, thereby ensuring the continuity of water and sanitation services.



[KTU Environmental Problems Application and Research Center](#)
[KTU Basin and Water Resources Working Group](#)
[Plumbing Repair Unit](#)



Institutional Collaborations in Water Management

In November 2024, news of the "6th International Congress on Environmental Chemistry" received widespread coverage in the local press. Hosted by KTU and organized in collaboration with KTU, Valencia University, and Sivas Cumhuriyet University, this congress was attended by representatives from academia, the public sector, and industry, and discussed sustainable solutions in environmental chemistry and technology. News reports indicated that the congress began at the Prof. Dr. Osman Turan Congress Center in Trabzon and emphasized scientific solutions to environmental problems.



Education-Focused Approaches to Sanitation

The "Practical Hygiene Training," organized by the KTU Civil Servants Academy, was presented by Emel Özen Dursun at the Koru Hotel Conference Hall for new support (cleaning) staff. The training focused on the use of cleaning chemicals, the appropriate selection of cleaning materials, and the implementation of hygiene rules. In this context, SDG-6's subgoal 6.2, "Ensuring adequate sanitation and hygiene for all," was strongly supported. Through face-to-face sessions based on practical applications, on-campus hygiene standards were raised, and employee awareness and work skills were enhanced. This event is an indispensable training opportunity for protecting clean water and preventing the spread of disease.



[KTU Event](#)





Throughout 2024, KTU added a new academic and educational initiative contributing to SDG 6. The “Hand Hygiene and Oral Hygiene” training, organized for university personnel, served as an important awareness activity aimed at promoting health-based hygiene practices.

The training was delivered by Prof. Dr. Saadettin Kayıpmaz from the Department of Oral, Dental, and Maxillofacial Radiology, Clinical Sciences Division, Faculty of Dentistry, KTU. During the first part of the session, the health importance of hand hygiene was presented theoretically, and correct handwashing techniques were demonstrated practically to participants. In the second part, the effects of oral hygiene on individual and public health were detailed, emphasizing that hygiene is significant not only for personal health but also for public health.

This activity directly aligns with SDG 6, target 6.2, which aims to ensure access to adequate sanitation and hygiene for all. At the same time, it provides a structural contribution by improving institutional hygiene standards, enhancing the knowledge and skills of personnel, and promoting sustainable cleaning practices. Such initiatives, which raise awareness among university staff regarding hygiene, are of strategic importance for creating a safe and healthy campus environment.

In this context, KTU contributes holistically to the human dimension of SDG 6, not only through scientific research and infrastructure improvements but also through personnel training.





In 2024, KTU's work within the scope of SDG-6 target was not limited only to academic and institutional efforts, but was also reinforced by student teams' technological initiatives that contributed to environmental sustainability.

In this context, the “CREATINY Surface Team”, composed of students from the Department of Naval Architecture and Marine Engineering at KTU, achieved a significant milestone by winning first place in the TEKNOFEST 2024 Unmanned Surface Vehicle Competition. The unmanned surface vehicle entered in the competition features an eco-friendly design that enables surface water research, monitoring of marine pollution, and collection of water quality data.

The technological solution developed through this project contributes practically to the protection of marine and coastal water resources, monitoring of aquatic ecosystems, and sustainable water management. This student achievement demonstrates that the university supports the sub-goals of SDG 6, specifically “improving water quality” and “protecting water resources,” not only at the scientific level but also through student-led projects.

The system developed by the CREATINY team is planned to be used in the future for both environmental monitoring and educational purposes, serving as an exemplary initiative for the dissemination of innovative sustainability practices within the university-industry-environment nexus.



AKADEMİKA

SU VERİMLİLİĞİ VE SUYA DAİR HER ŞEY

Information Programs on Water and Hygiene

Throughout 2024, KTU continued to share its scientific activities on sustainable water management with the public. Within this scope, Dr. Öğr. Üyesi Osman Üçüncü presented a current project on campus rainwater management during a live broadcast on KTU-TV.

During the program, the objectives, scope, and technical infrastructure of the BAP-supported project, designed for collecting, treating, and reusing rainfall on the university campus, were presented in detail. Dr. Üçüncü emphasized that climate change-induced alterations in precipitation patterns increase the risks of water scarcity.

The project implemented on the KTU campus involves collecting rainwater from roofs and surface runoff, storing it, and treating it through physical and biological processes before reusing it, thereby promoting sustainable water management practices.

In 2024, KTU Radio-TV broadcast a program titled “Increased Respiratory Infections During Winter and Prevention Methods”, featuring Dr. Tuğçe Mehlika Şanver, a Public Health Specialist from the Trabzon Provincial Health Directorate. Dr. Şanver highlighted the role of personal hygiene in preventing infectious diseases and emphasized that proper handwashing with water and soap is a fundamental public health tool.

The program served as an awareness-raising broadcast, encouraging the development of hygienic behaviors among both university staff and the general audience. Such community-oriented informational activities conducted through KTU’s media channels demonstrate that the university contributes to the Sustainable Development Goals not only through physical infrastructure and education but also via awareness-raising and behavior-change mechanisms.





Academic Contributions

KTU continues its qualified efforts toward the Sustainable Development Goal of Clean Water and Sanitation (SDG 6). According to the Scopus database, the number of scientific publications related to this development goal increased from 27 in 2023 to 31 in 2024. Scientific projects at both undergraduate and graduate levels targeting this goal are also actively ongoing.

According to THE Impact Ranking, KTU was placed in the 601-800 band for the Clean Water and Sanitation goal in the 2025 results (based on 2024 data). THE Impact Ranking 2025 data indicate that KTU's scientific outputs related to SDG 6 earned a score of 54.

KTU's approach to SDG 6: Clean Water and Sanitation is multifaceted, encompassing policy-aligned reports, educational programs, community activities, research publications, data monitoring, and extensive partnerships. From teaching the importance of hygiene on campus to participating in city-wide initiatives for clean coasts and signing agreements with water authorities, KTU demonstrates how a university can advance clean water and sanitation at both the grassroots and institutional levels.

These efforts not only benefit the KTU community and its surroundings but also contribute to regional and national steps toward ensuring universal access to water and sanitation and sustainable management by 2030.



[Academic Publications-2024](#)





Sustainable KTU

This publication has been prepared by KTU Office of
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