Mingachevir State University

Report

6 CLEAN WATER AND SANITATION

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Introduction

This report aims to systematically analyze the activities, current status, and future plans of Mingachevir State University (MSU) within the framework of the United Nations Sustainable Development Goals (SDGs), specifically **SDG 6 – "Clean Water and Sanitation."** It documents the university's actions in water management, efficient water use, wastewater treatment, environmental awareness, and improvement of sanitary conditions.

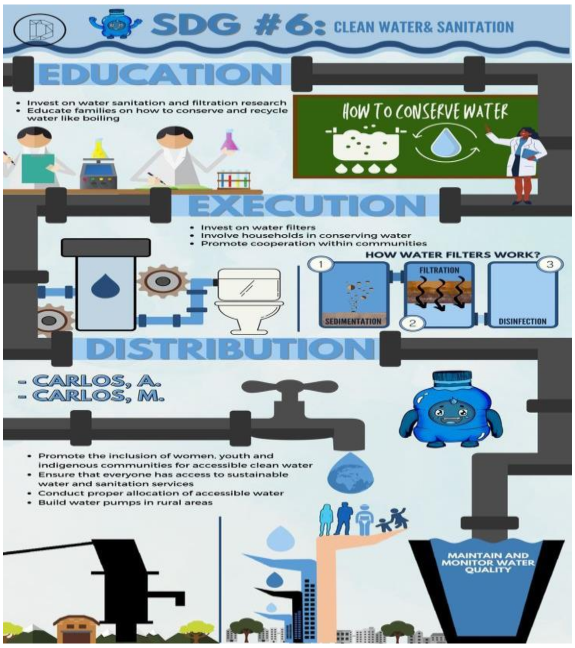
The document also serves as an accountability report, presenting to the public, partner institutions, and international organizations the measures undertaken by MSU to protect water resources and promote environmental responsibility as part of its sustainable development policy.

Given Mingachevir's strategic importance as a center of hydroelectric and energy production, MSU, as a higher education institution operating in this region, bears a particular responsibility in the management of water resources, environmental protection, and promotion of ecological education. Therefore, the report holds both **regional and national strategic significance.**

The **6th UN Sustainable Development Goal — "Clean Water and Sanitation"** — aims to ensure universal access to safe drinking water, adequate sanitation services, and efficient water management by 2030. Globally, this goal has become increasingly relevant due to factors such as climate change, population growth, and urbanization.

The **Republic of Azerbaijan** has joined the global effort by identifying **environmental sustainability and water security** as national priorities in its policy document *"Azerbaijan 2030: National Priorities for Socio-Economic Development."* National programs such as the *"Water Supply and Sewerage Development Program,"* the *"National Water Strategy,"* and the *"Green Growth"* policy are aligned with these goals.

In this context, the role of **regional higher education institutions like MSU** is twofold: on one hand, through education and research, the university contributes to the scientific study of water and environmental issues; on the other hand, it fosters ecological responsibility among students and the wider community. Thus, MSU's activities are directly aligned with both the **SDG 6 targets** and **Azerbaijan's national environmental strategy.**



Mingachevir State University has identified **sustainable development, environmental responsibility, and efficient resource management** as core principles of its development strategy. Through environmental awareness initiatives, training sessions, and scientific seminars, the university actively contributes to raising public ecological consciousness on water conservation and sanitation issues.

Moreover, MSU's research potential is directed toward topics of **regional importance**, such as assessing the water quality of the Kura River basin, protecting ecosystems, and optimizing irrigation systems. These initiatives clearly demonstrate the university's commitment to **SDG 6** both at the **national** and **international** levels.

Water Resources and Quality

Mingachevir State University (MSU) is located in Mingachevir, one of the most strategically important regions of Azerbaijan in terms of water resources. The city's water supply mainly depends on the Mingachevir Reservoir and the Kura River Basin. These two sources play a vital role in providing drinking and technical water to the city's population, as well as to industrial and educational institutions, including the university.

The university's buildings are connected to the centralized water supply system managed by *Azersu OJSC*. The main source of this system is the Mingachevir Reservoir, which was constructed on the Kura River and is the largest water reservoir in Azerbaijan. It has strategic importance for the country's energy production, irrigation, and drinking water supply.

The Mingachevir Reservoir regulates the flow regime of the Kura River, enabling the distribution of treated water to surrounding cities and settlements. In addition, groundwater extracted from artesian wells is used for certain technical purposes (such as landscaping and laboratory experiments). This water is mainly utilized for non-drinking purposes.

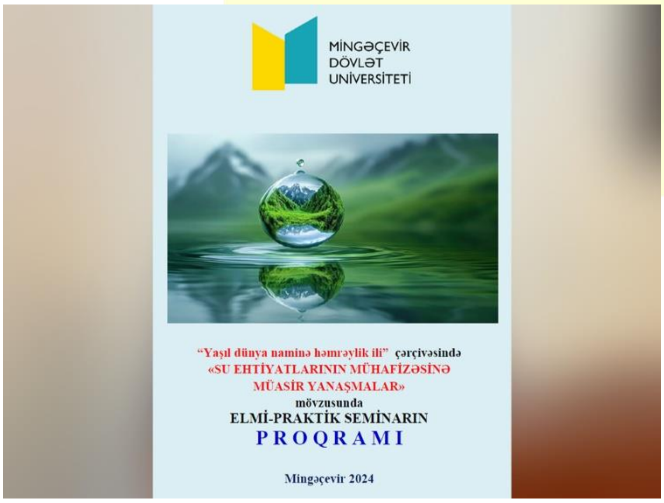
The city's drinking water supply is managed through Azersu OJSC's regional water treatment facilities. Raw water taken from the Kura River and Mingachevir Reservoir first undergoes mechanical cleaning, sedimentation, and filtration, followed by disinfection before being distributed into the municipal network. This process is carried out in accordance with the **World Health Organization (WHO)** standards for drinking water.

Regular monitoring of the physical, chemical, and bacteriological indicators of water quality is conducted by Azersu. These monitoring activities ensure that the water used by Mingachevir State University meets international quality requirements.

At the university level, awareness activities are organized to promote understanding of water purity, usability, and hygienic safety. Within the framework of laboratory sessions, students analyze various indicators of water samples—such as pH level, salinity, oxygen content, and microbiological cleanliness—thereby strengthening both their ecological awareness and practical competencies.

Public Awareness and Academic Contributions

Mingachevir State University (MSU) has been systematically expanding its activities within the framework of the Sustainable Development Goals (SDGs), particularly **SDG 6 – “Clean Water and Sanitation.”** The university’s primary objective is to integrate scientific, educational, and public awareness activities focused on water conservation, efficient management, and quality improvement.



One of the key initiatives in this direction was the **scientific-practical seminar on “Modern Approaches to Water Resource Protection.”** Organized within the framework of the *“Year of Solidarity for a Green World,”* the seminar was dedicated to discussing modern scientific approaches, ecological policies, and practical experiences related to water resource conservation. Participants included representatives from the *Mingachevir Water Canal Department, Regional Department of Ecology and Natural Resources No. 8 (RESTI)*, faculty members of the Engineering Faculty, students, and graduate students.

The seminar was opened by **Assoc. Prof. Təranə Yusibova**, Head of the Department of Physics and Ecology, who provided extensive information about modern approaches to water conservation, Azerbaijan’s state programs in this field, and the alignment of the *“Year of Solidarity for a Green World”* with environmental challenges. She emphasized the national and global importance of ecological action and the necessity of educating the younger generation in this area.

During the seminar, **Tural Dursunov**, Head of the Water Systems Analysis Department at Mingachevir Sukanal, presented the current state of the city's drinking water supply and sewage systems, while **Ülkər Paşayeva**, a representative from RESTI No. 8, explained the mechanisms of wastewater treatment. MSU lecturers **Gülmirə Məmmədova** and **Aysel Bayramova** delivered presentations on the pollution of the Caspian Sea by oil and the ecological problems of Azerbaijan's main water artery, the Kura River.

To combine theory with practice, students of the *Ecology* and *Environmental Engineering* programs conducted laboratory demonstrations on the determination of phosphates, nitrates, and ammonium in water samples collected from the Kura River. This hands-on activity played a significant role in analyzing water chemistry and identifying pollution levels, enhancing both academic learning and environmental awareness.

Through these initiatives, MSU contributes to strengthening ecological literacy in the region and promoting scientific approaches to clean water preservation and sustainable use. The university's seminars, projects, and research activities are fully aligned with the key targets of **SDG 6**, such as efficient water management, pollution prevention, and sustainable utilization of water resources.

In another significant event, the Department of Physics and Ecology organized a scientific-practical seminar on **"Sustainable Management of Water Resources."** The session was moderated by **Assoc. Prof. Təranə Yusibova** and opened by **Vüqar Mustafayev**, Head of the Department of Science and Innovation, who welcomed the participants on behalf of MSU Rector **Anar Eminov**. He provided information about the *"National Strategy on Sustainable Management of Water Resources,"* approved by the Decree of the President of the Republic of Azerbaijan **Ilham Aliyev** on October 10, 2024, emphasizing the interconnection between this national strategy and the scientific and educational roles of higher education institutions.

MSU faculty members presented research papers during the seminar:

- **Fatimə Məmmədova**, *"Sustainable Management of Water Resources: Realities and Prospects"* – analyzing the distribution of water resources, existing problems, and potential solutions in Azerbaijan.
- **Gülgün İsrafilova**, *"Global Issues of Freshwater Bodies"* – addressing the impact of climate change, pollution, and anthropogenic factors on freshwater sources.
- **Gülmirə Məmmədova**, *"Key Stakeholders of Water Management Systems"* – examining the shared responsibilities of the state, private sector, and civil society in water governance.

Following the presentations, a short video titled **"Water is Life"** was screened, followed by an engaging discussion on the effective management of water resources and Q&A with students. This seminar reflected MSU's academic and scientific alignment with **SDG 6**, while also serving as a platform for raising environmental awareness and enhancing young specialists' knowledge in sustainable water management.

Furthermore, MSU's efforts under **SDG 6** extend beyond local environmental education. The participation of MSU students in the **6th Caspian Water Innovation Forum**, held at Baku Expo Center under the motto *"Adding Value to Water,"* marked an important milestone. Organized by *Aqualink LLC*, this international event served as a platform for sharing best practices in sustainable water management, environmental protection, and the application of innovative technologies.

Led by lecturer **Gülmirə Məmmədova**, students from the *Ecology*, *Environmental Engineering*, *Chemistry Education*, and *Physics Education* programs represented MSU at the forum. They attended presentations by leading international companies such as **DuPont Water Solutions**, **Hydrophil GmbH**, **AO Smith**, **ProMinent GmbH**, and **JUMO**, gaining exposure to advanced technologies in water purification, filtration, desalination, and wastewater reuse.

The forum provided valuable opportunities for MSU students to develop practical skills, innovative thinking, and multidisciplinary perspectives on global environmental issues. Their participation not only enhanced ecological literacy but also transformed them into active contributors to the implementation of **SDG 6**.

Overall, MSU's involvement in the **6th Caspian Water Innovation Forum** represents a continuation of its commitment to sustainable water management and innovative environmental education. It also highlights the university's strategic steps toward expanding regional and international collaborations and equipping young professionals with globally relevant competencies in environmental and water sciences.