EXTENDED ANNUAL REPORT OF NAMANGAN STATE UNIVERSITY ON SDG 6

At Namangan State University, systematic work is being carried out to ensure the rational use of water resources, reduce water wastage, and maintain ecological sustainability. During new construction and reconstruction projects, as well as modernization of existing buildings, the university administration strictly adheres to national and international regulatory standards aimed at minimizing water consumption.

In particular, the work is organized based on the following regulatory documents and standards:

- Decree No. 210 dated July 15, 2019, of the Ministry of Construction of the Republic of Uzbekistan, “On the Introduction of Water-Saving Technologies in Construction”;
- Uz DST 3049:2015 – “Drinking Water Supply Systems. Design, Construction, and Operation Rules”;
- Uz DST 2763:2018 – “Technical Requirements for the Efficiency of Water Use and Reduction of Wastewater in Buildings and Structures”;
- SP 30.13330.2016 (Russian Federation standard, adapted version) – “Drinking Water Supply and Sewerage Systems. Construction Norms.”

Based on these regulatory documents, the university implements the following practical measures:

- Water-saving sanitary equipment (automatic shut-off faucets, low-flow toilets, sensor-controlled showers) has been installed in newly constructed academic and dormitory buildings;
- Rainwater harvesting systems have been introduced on a trial basis in certain buildings for technical needs;
- Filtration and recirculation (recovery) systems are being implemented in water supply networks;
- To reduce water wastage, preventive technical inspections are conducted monthly, and malfunctions are promptly addressed;
- Awareness and advocacy activities are carried out among university staff and students to promote a culture of rational water use.

Based on the above, Namangan State University fully complies with the relevant construction standards and technical regulations to minimize water consumption, ensure ecological safety, and develop sustainable infrastructure.

The main responsibility of the university is to ensure that every student’s daily water needs are met hygienically with safe and clean drinking water. To this end,

modern water-dispensing units (coolers) have been installed at all key locations throughout the university:

1. **Student Dormitories (TTJ):** Clean drinking water dispensers are available on each floor and in common recreation areas, allowing students to access hot or cold water at any time.
2. **Common Dining Facilities:** Continuous provision of clean drinking water is ensured in all university cafeterias and buffets during meal times.
3. **Faculty Buildings:** Adequate water dispensers are installed in lecture halls, recreation areas, and near classrooms of each faculty, enabling students and teachers to quickly access water during classes.

During large-scale events held at the university, special attention is also paid to the provision of drinking water:

During admission processes: For applicants and their parents, additional water dispensers and reserves of bottled drinking water are provided at admissions committee buildings, document submission points, and waiting areas during the hot summer days.

Parent meetings and roundtable discussions: In large halls where meetings, conferences, and roundtable discussions with parents and guests are held, water dispensers are installed, or specially packaged water is provided for each participant.

Scientific conferences, cultural-educational events, and sports competitions: Adequate quantities of clean drinking water are ensured at all venues, with strict monitoring.

Namangan State University systematically provides educational and awareness activities on efficient water use for local communities and residents as part of its campus and regional projects. Through the university, training programs, seminars, and awareness campaigns are conducted for the public and students on water conservation, protection of water resources, and water recycling.

The university has developed and implements internal policies and practical documents to promote water reuse and rational water use (e.g., the “Policy for Water Reuse” and other reports). These documents define measures for effective water use within the university’s infrastructure.

The Departments of Natural Sciences, Geography, and Ecology conduct scientific research, projects, and collaborations on water resource management, water protection, and water recycling. Faculties and researchers engage in studies on regional water issues, provide practical recommendations, and develop educational modules based on project outcomes.

Reports and books published by the university (for example, publications such as *“Efficient Use and Protection of Water Resources”*) and the 2024 list of scientific

projects contain information related to water and environmental studies. These documents confirm the university's practical approach in this area.

Namangan State University collaborates with regional organizations, research institutions, and practical management bodies, participating in regional projects in the field of water supply and management, as well as conducting awareness and educational activities targeted at the local population.

At the university, faculty members of the Biotechnology Department conduct research on the rational use of water, and the results of these studies are applied in production and farming, achieving high outcomes. Notably, in the "Ishonch" and "Zarbdor" farms of Namangan district, O. Usmonov, a faculty member, successfully defended his PhD dissertation on the rational use of water in the cultivation of root vegetables.

Namangan State University has officially adopted a "Policy for Water Reuse," which defines mechanisms for using recycled wastewater in irrigation, collecting rainwater, and reducing water wastage across the campus.

Additionally, under the "Green Campus" program, the university has installed water-saving irrigation systems and implements measures to manage internal infrastructure in an environmentally efficient manner.

Within courses in ecology, biology, and geography, the university provides in-depth coverage of the rational use of water resources, environmental protection, and sustainable development ecology. For students, the open electronic textbook *"Fundamentals of Ecology"* includes separate chapters on water resource ecology, water-saving technologies, and raising social awareness.

Furthermore, Namangan State University researchers conduct studies on *"Transboundary Water Resource Use and Protection Challenges"*, publishing their results in international journals. The university, in cooperation with the Namangan Regional Environmental Department, the "Water Supply" State Unitary Enterprise, local government bodies, and the Uzbekistan Youth Union, regularly organizes seminars, competitions, and open days under the slogans *"Water — Source of Life"* and *"Every Drop is Valuable."*

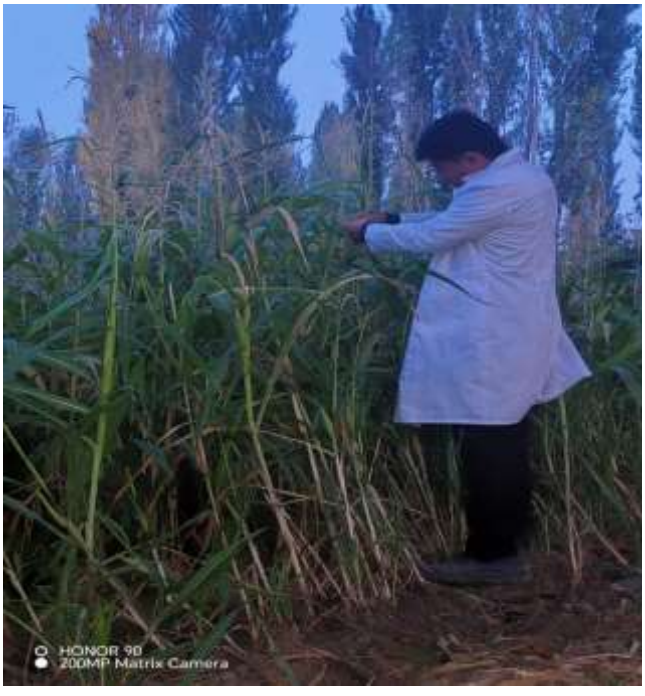
Every year, on March 22 — World Water Day — the university hosts scientific-practical conferences, student forums, and ecological exhibitions.

Namangan State University participates in the *"Namangan Water Quality Improvement Project"* in collaboration with the European Bank for Reconstruction and Development (EBRD), providing scientific and methodological support to improve the regional water supply system. EBRD Project Link

Additionally, the university cooperates with international organizations such as the OSCE, UNESCO, and Erasmus+ on projects focused on water resource management, water quality improvement, and fostering environmental awareness.

Worldwide, the demand for drinking water is continuously increasing, while its availability is insufficient. In our country, the main issue is the lack of local water sources, which makes it even more important to foster a responsible attitude toward water through constant awareness and educational campaigns.

For this reason, the faculty members of the department actively conduct outreach activities in all districts of the region. In particular, young lecturers of the department, D. Ergashev and Sh. Shomaqnsurov, have carried out research on farms in Chust district, where water is extremely scarce. They have scientifically demonstrated that high crop yields can be achieved with minimal water use and have been providing direct support to local farmers.



Since the university offers programs in agricultural education, the regional administration allocated a 14-hectare plot in Yangiqo‘rg‘on district, an area with difficult irrigation conditions. The soil conditions of this land were studied, and data

on water retention and drought-resistant plants were collected. Based on this information, over 4,000 seedlings of *namatak*, a medicinal plant well-suited to these conditions, were planted, achieving an 88% germination rate.

In addition, various water-efficient, drought-resistant fruit trees were planted on the site. Almond trees were planted on the higher ground, while peach and apricot seedlings were planted on the lower areas, all of which successfully took root.

To ensure adequate irrigation for these plots, a plan was developed to transport wastewater to the area. An estimate for bringing water from the nearest wastewater basin has been prepared, and budgeting and financing calculations are underway.




At the same time, due to the large area of the university campus, it was not possible to fully supply all land plots with water. Therefore, before the creation of the ECOGARDEN, the water supply system was carefully reviewed, and the possibility of bringing additional water was ensured. As a result, the university campus was

transformed into a green space, which was recognized and appreciated by high-level authorities across the country.

Namangan State University implements a systematic water management policy both within and outside its campus based on the following documents of the President of the Republic of Uzbekistan: “Concept for Rational Use of Water Resources” (PQ–3895, August 29, 2018), “National Strategy for Adaptation to Ecology and Climate Change” (PQ–122, March 31, 2023), and the nationwide “Green Space” program (PQ–4955, December 30, 2021). The university’s activities are guided by a sustainable water use model — protecting water as a limited natural resource, promoting recycling, and establishing monitoring systems.

Since 2024, the central building and the new “Biotechnology” faculty building have been equipped with a rainwater harvesting and reuse system for technical purposes. This system collects an average of 180–200 m³ of water annually, which is used for irrigation of green areas and technical cleaning.

Drip irrigation systems have been installed in the university courtyard, greenhouse, and experimental training plots. This system has reduced water consumption by up to 40% compared to traditional irrigation methods. In 2024, smart water meters (IoT Water Meters) were installed across the campus, allowing water usage to be monitored via a digital platform. This system has helped prevent wastage and reduce annual water consumption by 15%.

Outside the campus, water intake and monitoring activities are carried out by the Namangan State University “Bioecology and Water Resources Monitoring” laboratory, which regularly analyzes the water quality of the Norin and Chortoq rivers. Each year, water samples are tested for physicochemical parameters (pH, nitrates, oxidation level) and biological indicators (phytoplankton, bioindicator plants).

In cooperation with three farms in the To‘raqo‘rg‘on district, the university has developed a monitoring system for the rational use of groundwater. As a result, the groundwater level has stabilized, and irrigation efficiency has improved.

Students from the “EcoNamDU” club conduct educational sessions in 12 schools and 4 mahalla community centers in the region, focusing on water conservation and protection from pollution.

Reference on Water Conservation Activities at Namangan State University in 2024

Direction	Implemented Measures	Result
Rainwater harvesting system	180–200 m³ of water reused	Need for drinking water for irrigation reduced by 25%

Direction	Implemented Measures	Result
Drip irrigation system	1.2 hectares of green area	Water consumption reduced by up to 40%
Smart water meters	Installed in 6 buildings since 2024	Water wastage reduced by 15%
River monitoring	Analysis of Norin and Chortoq rivers	Annual changes in water quality tracked
Project with farms	3 farms	Groundwater level stabilized

In addition to internal measures, the university actively collaborates with other scientific research institutes on water conservation. In partnership with the Uzbekistan Cotton Selection and Seed Research Institute, NamDU is implementing the applied project AL-9124093616: *"Developing a technology for cultivating two types of crops using drip irrigation while efficiently utilizing water and soil resources"*.

Namangan State University has made water conservation and responsible usage a key component of its environmental policy, in accordance with the following presidential documents:

- *Concept for Rational Use of Water Resources* (PQ–3895, August 29, 2018)
- *"Green Space" Nationwide Program* (PQ–4955, December 30, 2021)
- *Strategy for the Development of Education in Ecology and Environmental Protection* (PQ–250, July 1, 2023)

The university actively promotes water culture through education, science, public engagement, and volunteer initiatives. The NamDU "EcoNamDU" volunteer club organized awareness campaigns under the slogan *"Save Water – Protect the Future"* in 25 schools, 5 community centers (MFY), and 3 colleges in the region. These activities highlighted efficient water usage, pollution prevention, and reducing water scarcity risks. NamDU also collaborates with Namangan TV and the *Zarafshon* newspaper to produce media content dedicated to water conservation.

Since 2023, the Department of Ecology has implemented the *"Green Water Management"* project in cooperation with regional farms. Within the project, undergraduate and graduate students conduct practical training on innovative water-saving technologies. Over 300 farm specialists have been trained in water conservation technologies.

On *World Water Day* (March 22), NamDU students organize eco-walks, seminars, photo exhibitions, and quizzes. In 2024, more than 1,000 students and 400 teachers participated in these events.

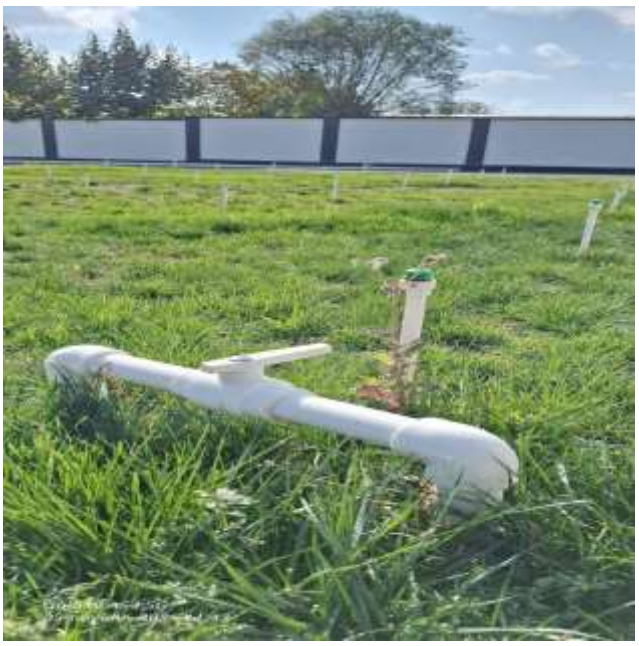
The university also conducts water conservation training seminars for the public in cooperation with the regional Ecology Department, *Suv ta'minoti* LLC, and the

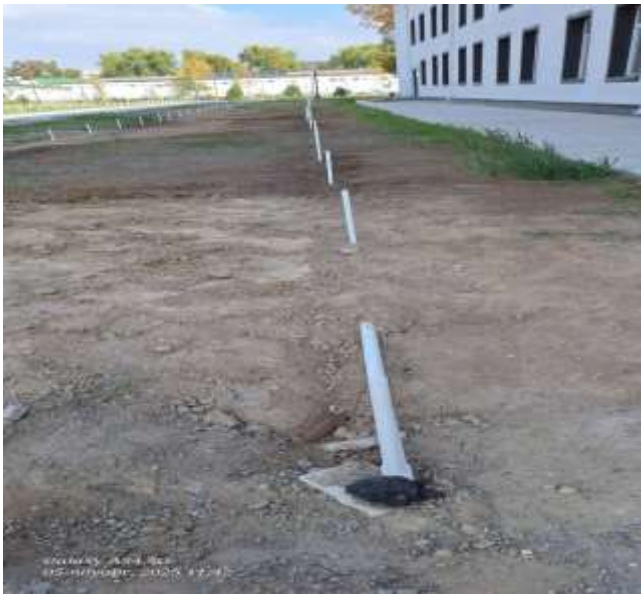
Green Space regional center. In 2023–2024, 15 seminars were held, attended by over 1,200 local residents.

Information on Water Conservation Promotion Activities at Namangan State University in 2024

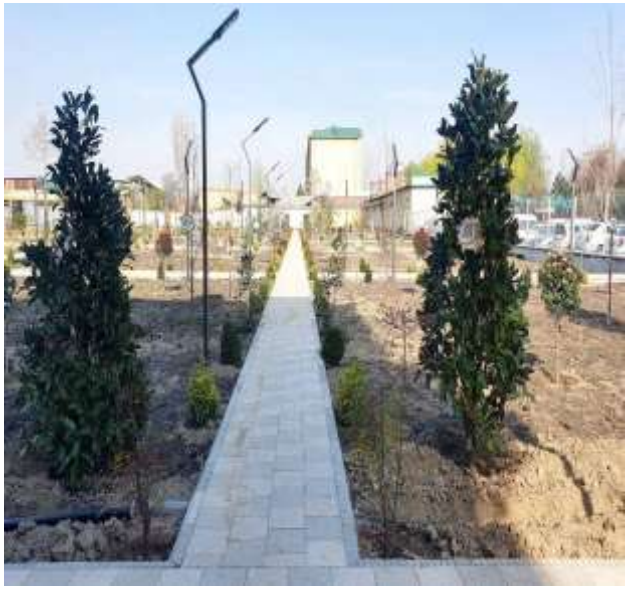
Direction	Implemented Activities	Result
Awareness among youth and students	Lessons conducted in 25 schools, 3 colleges, and 5 community centers (MFY)	Over 4,000 people gained knowledge on water conservation
Media outreach	4 TV programs, 6 articles	Reached an audience of over 50,000 across the region
Projects for farmers	Implemented in 3 districts, involving 300 farmers	Average water consumption reduced by 25%
"Water Week" campaign	Participation of 1,000+ students and teachers	Students strengthened ecological skills and awareness

Studies of the natural-geographical conditions of the *EcoBog* area at Namangan State University revealed a high groundwater level in this territory. Under such conditions, traditional ditch irrigation or other high-water-demand methods can lead to inefficient use of water resources and, in some areas, increase the risk of soil salinization.



Therefore, in this area, a scientifically based sprinkler irrigation system was implemented to promote water-efficient usage and improve crop and plant agronomic practices. This system ensures that the water needs of trees and shrubs are met according to precise norms, distributes water evenly, and prevents excess water consumption. Additionally, sprinkler irrigation helps wash dust off the leaves, which in turn enhances the efficiency of the photosynthesis process.



As a result, in the Ekobog area, the implementation of efficient water use in the care of trees and shrubs has created the possibility of establishing an ecologically effective water supply system while ensuring the sustainable growth of plants.

Namangan State University has documented these efforts within the framework of SDG 6, based on publicly available reports and publications. The **"Clean Water and Sanitation" (PDF)** report, published by the university, provides detailed information on the campus drinking water supply, annual water consumption, and water-saving measures. For example, in 2024, the university obtained **64.8 thousand m³ of water from the main supply network**, along with details of the daily volume of desalinated water used. This document offers precise figures essential for infrastructure and resource management assessment.

Contract and water supply provider: The university has signed a contract with **Namangan "Suv Ta'minoti" LLC** for drinking water supply, demonstrating practical steps to ensure a stable water supply system on campus.

Water conservation and environmental outreach: The university organizes landscaping projects and educational events promoting rational water use. Community-based initiatives for water protection are also implemented, showing that the university's efforts extend beyond internal infrastructure to have a broader impact on local communities.

Below is a comparison of SDG 6 global indicators with the data published by NamDU: the connection to the main supply network and the supply contract directly support these indicators, demonstrating compliance with global standards for clean water and sanitation management.

At Namangan State University, the health and well-being of students and staff are consistently supported, with particular attention to providing safe and high-quality drinking water. The university administration has implemented a range of practical measures in this area.

Specifically:

- Modern drinking water dispensers equipped with advanced filtration systems have been installed in the main academic buildings, administrative offices, and student dormitories.
- Students, faculty members, administrative staff, and visitors have free access to clean drinking water through these devices.
- Drinking water systems are regularly inspected in accordance with sanitary and hygiene standards, and water quality indicators are analyzed by relevant laboratories.
- During the summer and hot seasons, additional water fountains are installed, and the water supply system is continuously updated.
- Designated staff are responsible for ensuring the uninterrupted supply of drinking water in dormitories and cafeterias.

Additionally, the university promotes environmental sustainability by reducing single-use plastic bottles and encouraging the use of refillable containers.

In conclusion, Namangan State University has fully established a system for providing safe and high-quality free drinking water to students, staff, and visitors, ensuring its continuous and reliable operation.