

Does your university as a body, where water is extracted (for example from aquifers, lakes or rivers), utilise sustainable water extraction technologies on associated university grounds on and off campus

Azerbaijan State Oil and Industry University (ASOIU) recognizes the critical importance of sustainable water management in the context of Azerbaijan's semi-arid climate and its national commitments to SDG 6 (Clean Water and Sanitation). Not only directly extract large volumes of water from aquifers for operational use, but also ASOIU actively implements and promotes sustainable water-extraction and conservation principles across its campuses and associated research facilities.

1. Sustainable Groundwater Extraction and Campus Water Tap System

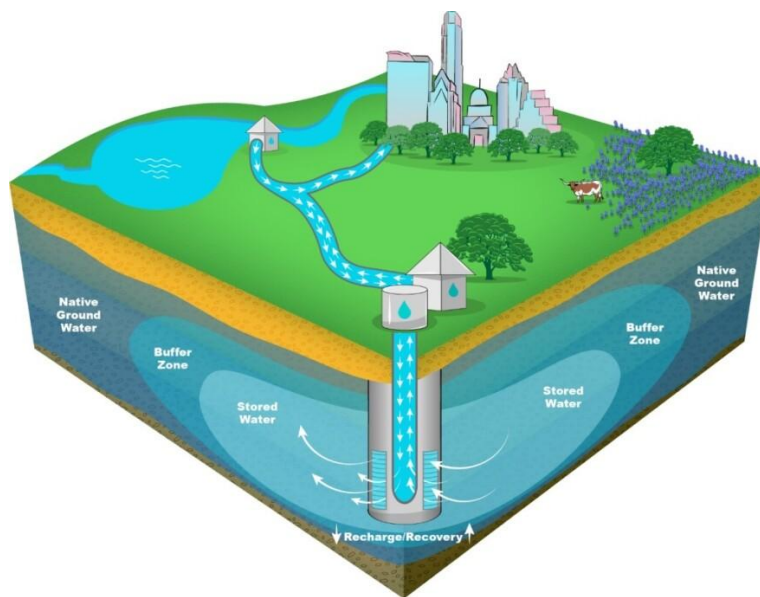
On its main campus in Baku, ASOIU has installed a sustainable groundwater extraction and supply unit, which draws water from a shallow aquifer layer located beneath the campus area. The extracted water passes through a multi-stage sand and carbon filtration system and is supplied to a public drinking water tap/fountain used by students and staff. This initiative, implemented jointly by the Department of Environmental Engineering and the Green Campus Committee, serves as both a functional water source and an educational demonstration model of sustainable water withdrawal, filtration, and re-use.

The system includes flow-rate monitoring sensors, automated shut-off controls to prevent over-extraction, and a periodic aquifer-level measurement protocol, ensuring that withdrawal remains within the aquifer's natural recharge capacity.

2. Sustainable Water Management Practices on University Grounds

ASOIU's Sustainability Strategy 2023–2030 includes a dedicated focus on responsible water use and conservation. The university's facilities department operates low-flow water fixtures, sensor-based taps, and efficient irrigation systems that minimize water consumption and prevent over-extraction from municipal or local groundwater sources. Additionally, through the Green Campus Initiative, groundwater harvesting tanks are being introduced at the main campus to collect and reuse precipitation for landscape irrigation — reducing dependence on external extraction sources.

The university's Environmental Engineering department also monitor water quality and consumption patterns, using sensor-based technologies similar to those employed in modern sustainable extraction systems. These efforts align with Azerbaijan's national "Water Strategy 2024-2040," ensuring that ASOIU's on-campus operations adhere to environmentally responsible extraction and discharge standards.



2. Research and Pilot Projects in Sustainable Extraction Technologies

ASOIU integrates sustainable water extraction within its **research and educational activities**, in collaboration with the Ministry of Ecology and Natural Resources and the Hovsan Aeration Station. Research projects led by students and faculty focus on:

- Modeling aquifer recharge and extraction balance for the Absheron Peninsula;
- Developing sensor-based groundwater monitoring units for industrial sites;
- Testing solar-powered micro-pumps for remote field stations; and
- Studying membrane-based desalination and filtration as an alternative to deep-well extraction.

These initiatives ensure that any future extraction from ASOIU-associated experimental grounds or laboratories is performed sustainably, with continuous monitoring and minimal ecological impact.