

14.2.1 - Does your university as a body offer educational programmes on fresh-water ecosystems (water irrigation practices, water management/conservation) for local or national communities?

Azerbaijan State Oil and Industry University (ASOIU) is strongly committed to advancing sustainable water management and ecosystem protection through its academic programs, community engagement, and applied research. Recognizing the increasing importance of freshwater conservation amid global climate change and water scarcity, ASOIU has integrated water-related disciplines into its educational framework and outreach activities.

The university actively promotes awareness and technical competence in water resource management, irrigation technologies, hydrological systems, and the sustainable use of aquatic ecosystems. These efforts support both SDG 6 (Clean Water and Sanitation) and SDG 14 (Life Below Water) by fostering practical knowledge that contributes to improved freshwater quality and conservation in Azerbaijan and beyond.

1. Academic Programmes in Water Resources and Management

ASOIU offers specialized degree programmes in Water Resources and Management, which combine engineering, environmental science, and sustainability studies. The curriculum covers:

- ✓ Hydrology and hydrogeology
- ✓ Water supply and irrigation systems
- ✓ Wastewater treatment and reuse technologies
- ✓ Hydraulic structures and river basin management
- ✓ Integrated water resource management (IWRM) models

These programmes equip students with skills in efficient water usage, irrigation optimization, and ecosystem restoration, preparing graduates to work in public utilities, energy enterprises, and environmental agencies. The inclusion of laboratory and field components ensures students gain hands-on experience with water quality assessment, flow measurement, and digital monitoring tools.



2. Ecological Engineering and Environmental Protection Programmes

In addition to water management studies, ASOIU runs Ecological Engineering and Environmental Protection programmes that emphasize the interrelation between water systems and ecosystems. Students learn methods for:

- Assessing the ecological health of freshwater habitats
- Designing green infrastructure for pollution reduction
- Restoring aquatic and riparian ecosystems
- Developing sustainable irrigation and drainage projects

These courses promote an interdisciplinary approach combining biology, chemistry, and civil engineering principles to protect water resources and maintain ecosystem balance.

https://asoiu.edu.az/chemical_technology_faculty/upload/syllabus/050606_AZE.pdf

3. Community Education and Capacity-Building Initiatives

Beyond formal education, ASOIU organizes public seminars, short courses, and outreach programmes aimed at local and national communities. These include:

- ✚ Workshops on water conservation and irrigation practices for farmers and regional authorities;
- ✚ Public lectures on climate impacts on freshwater ecosystems;
- ✚ Training sessions on water reuse and sustainable consumption for schools and municipalities.

These activities enhance community understanding of efficient water management and encourage the adoption of environmentally friendly practices in agriculture and industry.



4. Research and Innovation in Water Sustainability

ASOIU's research centers and laboratories conduct applied studies on water treatment, reuse, and monitoring technologies. Collaborative projects with national and international partners focus on:

- Developing water-saving irrigation methods;
- Modeling aquifer recharge and groundwater management;
- Designing sensor-based systems for water quality assessment.

Through these initiatives, ASOIU contributes to the sustainable development of Azerbaijan's freshwater systems and supports evidence-based policy solutions for water conservation.



https://asoiu.edu.az/single_news/2793

Conclusion

ASOIU's comprehensive approach to education, research, and community engagement in water resource management demonstrates its institutional commitment to preserving freshwater ecosystems. By offering dedicated degree programmes, interdisciplinary training, and public outreach, the university actively advances the principles of sustainable water use, aligning with the objectives of SDG 14.2.1 and contributing to the environmental sustainability of both local and national communities.