

AZERBAIJAN TECHNICAL UNIVERSITY



Azərbaycan
TEXNİKİ
Universiteti

REPORT



LIFE BELOW WATER

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Introduction

The shortage of fresh water resources is currently the world's gradually increasing and serious it has become a problem and makes all mankind think. The world at the moment more than 40% of its population has faced problems with drinking water. The problem of excess fresh water it has become a global issue, and its solution is possible through the joint efforts of the countries of the world. Researches show that the emergence of this problem is caused by climate changes that have been more clearly observed recently, the pollution of freshwater ecosystems by human agro-production activities, the global urbanization process and the rapid expansion of agricultural areas, etc. played a key role. More than 60% of the territory of Azerbaijan is occupied by human life activity directly fresh water related to reserves. In this regard, the short-term arising in freshwater sources problems serious concerns in all aspects of people's life activity creates.

SECTION 1. SUPPORTING AQUATIC ECOSYSTEMS THROUGH ACTION

1.1. Conservation and sustainable use of water bodies

Our university (Az TU) is an institution, our university supports and organizes activities aimed at promoting the conservation and sustainable use of oceans, seas, lakes, rivers and marine resources. Our university's (Az TU) Environmental Engineering students volunteer to various organizations in high schools, encouraging citizens and students to protect oceans, seas, lakes and marine resources. The department of "Chemical technology, recycling and ecology" operates in our university, one of the main areas of activity of the department is the solutions to water issues, including the protection and management of water resources. In this field, scientific research works on water purification, water resources management, separation of heavy metal ions from waste water by adsorption method were carried out. A grant was obtained through the German Academic Exchange Service and the above-mentioned scientific research work was carried out

1.2 Ecosystem biodiversity and conservation

Our University (Az TU), as an institution, strives to protect and expand the biodiversity of both plants and animals, especially the existing ecosystems that are under threat. On the campus of our university, greenery has been planted, various types of drought-resistant trees have been planted, and the gardeners of the University are busy with these plants. However, animals are not kept on the campus of the University. However, the trees planted in the courtyard of the University are being agrotechnical cared for, the land is plowed, new types of trees are planted, and greening works are being carried out. It should be noted that we do not have relations with industries in this field. However, we have strong relations with the green management, and we can get the necessary help from them.

SECTION 2. DISPOSAL OF WATER-SENSITIVE WASTE

2.1. Water quality standards

Since the university (AzTU) prepares specialists in "Ecological engineering" and "Environmental protection" specialties, information about ecosystems, especially water quality, is given a special place in education. When it comes to water quality, it is important to study its physical, chemical and microbiological, that is, sanitary-epidemic indicators. Extensive information on the physical, organoleptic, chemical,

microbiological composition of water, their determination methods, and the permissible concentration limit (TLC) is given a special place in the teaching. The organoleptic quality indicators of water mean its color, taste, smell, transparency, temperature, stratification, methods of determination of completeness according to the standards adopted by the state; chemical composition means its pH indicator, dry residue, heavy metals, methods of determining the amount of toxic substances. When talking about the epidemic safety of water, its sanitary-microbiological indicators, i.e. microbial count, coli-index, coli-titer, the presence and amount of pathogenic bacteria and viruses, and the amount of organic substances and their decomposition products in the sanitary-chemical indicators are considered in accordance with the standards. . The composition of waste water discharged into water bodies and the amount of mixed substances in the composition, the degree of toxicity, whether the permissible density limit is in accordance with the standards set by the state or exceeds the limit, and the fines in case of pollution are reported in the training. Environmental monitoring refers to guidelines for protecting water quality to protect human health and well-being.

2.2. Plastic waste reduction action plan

Our students studying "Ecological engineering" and "Environmental protection" specialties at the university join the calls for reduction and disposal of waste in the environment as volunteers. In addition, subjects on waste management, recycling, and waste-free production processes are taught at both the bachelor's and master's level. Waste, especially among household waste, plastic waste occupies a large place due to its volume and quantity. Although it is not a dangerous waste, plastic waste takes 300-400 years to decay and disintegrate, so its accumulation in large quantities, taking up a lot of space in landfills, and its dumping into seas and oceans are a global problem for society. Collecting and recycling plastic waste is the most convenient way. The most convenient way is to make packaging boxes, trash cans, household appliances that do not come into contact with food from recycled plastic waste. It is a convenient way to collect plastic waste in establishments, especially catering establishments, parks and educational institutions. Our students participate in the initiatives of collecting and handing over plastic containers in the recreation areas of the city and on the beaches.

2.3. Pollution Prevention Policy

Pollution of the Caspian Sea is one of the biggest problems facing the Caspian states. For this purpose, a congress of the Caspian littoral states "On the problem of

ecology and pollution of the Caspian" is held almost every year, and ways to prevent pollution are investigated. The main causes of the pollution of the Caspian Sea are spillage of oil and oil products into the sea as a result of oil production, oil spills during land transportation, accidents of oil tankers. In addition, sea pollution is caused by the wastes, organic wastes, fertilizers and fertilizers brought by the rivers Volga, Kura, Terek, Ural, Sulak and others flowing into the sea and as a result of global warming. In addition, the industrial and communication wastewater discharged into the sea by the coastal states are also the causes of increasing pollution. If we take into account that the coastal regions - Azerbaijan, Iran, Russia, Kazakhstan and Turkmenistan, where the population is large and the port cities are located on the sea coast, it can be clearly seen that there is a lot of waste water dumped there. Laws have been approved in the Framework Convention of Coastal States. According to these laws, specialists conducted monitoring in the territories belonging to each state, and a general agreement was reached on the amount of pollution from the coast, their exceedance of the limit of environmental pollution, and the setting of fines. At the university, students are informed about this during the teaching of various subjects.

SECTION 3. MAINTAINING THE LOCAL ECOSYSTEM

3.1. Plan to minimize physical, chemical, biological changes of water ecosystems

The water quality of Kura, Araz (Araks), Samur and other transboundary rivers in Azerbaijan is mainly degraded by the neighboring countries. As a result of the influence of waste water discharged into the Kura River and its tributaries from the neighboring countries, the waters of these rivers enter the territory of the country contaminated with nitrogen compounds, phenol, oil products, metal and other chemical compounds. One of such transboundary rivers is Okchuchay, which enters Azerbaijan from the territory of the Republic of Armenia. The project, which will include a 3-year research, developed in 2022 and related to the assessment of physical, chemical and biological changes and pollution of Okchuchay water and the health of the basin ecosystem, was presented to the Azerbaijan Science Foundation by the employees of the "Chemical technology, recycling and ecology" department of the university. Although the project does not receive financial support, scientists and specialists of the department continue their research in this field, at the same time improve the project and search for new donors.

Our University AzTU has an action plan related to the aquatic ecosystem. Pollution of both the waters and the Caspian Sea within our university is one of the biggest problems facing the Caspian littoral states. For this purpose, almost every year the Congress of the Caspian littoral states “on the problem of Ecology and pollution of the Caspian Sea” is held and ways to prevent pollution are investigated. The main causes of pollution of the Caspian Sea are oil and oil products spilled into the sea as a result of oil production, leaks during transportation to land, accidents of oil-carrying tankers. A project has also been developed at AzTU to prevent pollution, treat and recycle waste water. The representative office of the European Union in Azerbaijan has been appealed to assist in finding donors. Work continues on a project related to the integration of the water resources located in the liberated territories of Karabakh into the general water resources of Azerbaijan. This project envisages cooperation with local communities related to the use of shared water ecosystems.

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