BAKU STATE UNIVERSITY

REPORT ON SDG 14

LIFE BELOW WATER

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ABSTRACT

This report outlines Baku State University's comprehensive commitment to Sustainable Development Goal 14 (SDG 14) - "Life Below Water." The university has taken significant steps to support and educate local and national communities about the conservation and sustainable utilization of aquatic ecosystems and resources.

In the realm of education BSU offers a range of educational programs, including courses on freshwater ecosystems, aquatic plants, and freshwater aquaculture. These courses empower students and the community to understand water management, conservation, and aquaculture practices. Additionally, the university conducts outreach activities to raise awareness about overfishing, illegal fishing, and harmful fishing practices.

BSU is actively engaged in practical actions aimed at promoting the conservation and sustainable use of aquatic ecosystems. This includes organizing events to study and assess the ecological state of lakes and adjacent areas, with a focus on responsible water management. The university offers courses and research methods to maintain and extend biodiversity, with a special emphasis on ecosystems under threat. Furthermore, BSU collaborates with industries to research technologies and practices that minimize damage to aquatic ecosystems.

The report also highlights BSU's efforts in water-sensitive waste disposal, where a water cleaning robot project addresses water quality and pollution concerns. The university has also established water quality standards and guidelines for water discharges to protect ecosystems and human health.

In line with SDG 14, BSU has a policy to reduce plastic waste on campus, limiting plastic bottle use and promoting recycling. The institution has enacted policies to prevent and reduce marine pollution from land-based activities.

To maintain local ecosystems, BSU has implemented initiatives such as the "Sustainable Harmony of Nature" club, focused on raising awareness and protecting aquatic and terrestrial ecosystems. The university conducts biomonitoring to assess the health of aquatic ecosystems. Moreover, BSU supports programs and incentives to encourage good aquatic stewardship practices and collaborates with the local community and relevant organizations.

The report concludes with an overview of BSU's watershed management strategy, which considers the diversity of aquatic species in the region. Research

projects on Caspian sturgeon species exemplify the university's commitment to maintaining local ecosystems.

In summary, Baku State University has demonstrated a strong commitment to promoting the conservation and sustainable use of aquatic ecosystems and resources, addressing the key aspects of SDG 14 through education, action, waste disposal, and ecosystem maintenance.

USED DATA

Interdisciplinary policies of BSU:

1. Action Plan
2. Climate Action Policy

Legislative acts

1. Decree of the President of the Republic of Azerbaijan on approval of the National Strategy
2. Order of the President of the Republic of Azerbaijan on approval of “Azerbaijan 2030: National Priorities for Socio-Economic Development”

SDG 14. LIFE BELOW WATER

EDUCATIONAL PROGRAMMES

BSU offers educational programs on sustainable management of aquatic resources. Acting in educational programmes for sustainably manage and protection of aquatic and coastal ecosystems to escape significant conflicting impacts, their restoration with the intention of achievement healthy and productive environment.

General course: ATMF-B03 Aquatic plants of fresh water basins

Goals and objectives: General types of ponds used in aquaculture/ Freshwater aquaculture resources-ponds, tanks, lakes, reservoirs etc. The phytoplankton of fresh waters/ Lentic water organisms, lotic water algal blooms, Predatory and weed fishes of fresh waters, use of biofertilizers, supplementary feeding. Fresh water quality management. Selection, transportation, and acclimatization of fresh water fishs.

General courses: IF-B15 Aquatic plants aquaculture, IF-B17 Fish aquaculture, IF-B19 Methods of monitoring and research in aquaculture

Goals and objectives:

- Basics and history of aquaculture

-Modern classification of aquatic plants

- The structure and working principles of the devices used in the study of aquatic plants

- Principles of microscopic and macroscopic algal biology

- Requirements for media used for aquaculture of aquatic plants

University offers educational outreach activities for local or national communities to raise awareness. Students of the Biology Faculty of Baku State University (BSU) under the leadership of Chingiz Mammadov Associate Professor of the Department of Zoology and Physiology, were exposed to "Xilli Fish" Limited Liability Company operating in Khilli settlement of Neftchala district and "Azerbaijan Fish Farm" located in Banke settlement through outreach programs as a part of their curriculum.

Educational programmes for awareness and educational purposes for regulation of illegal and unreported fishing, execute science-based organization plans to restore fish stocks are still on the table.

ACTIONS TAKEN

As a part of organization of extension programs on sustainable use of water sources, careful management and responsible use of aquatic reservoirs, the integration of water management with other aspects of sustainability, faculty members of the Department of Bioecology of the Faculty of Ecology and Soil Science of Baku State University (BSU) have studied the ecological state of the soil cover, mesofauna, flora and avifauna of the Lokbatan, Binagadi and Kurdakhan lakes of Absheron and adjacent areas.As seafood is not usually used in campus and cafeterias in the university area, we do not have legislation on the harvesting of these foods from sustainable ecosystems.

University as a body works directly (research and/or engagement with industries) to maintain and extend existing ecosystems and their biodiversity, especially ecosystems under threat. According to the programme, İF-B19 Methods of monitoring and research in aquaculture the main objectives are as the following: Study the origin of waters used in aquaculture, the basic research methods used for monitoring in aquaculture, the rules of taking and storing various test samples, the methods of physical and chemical analysis of water, conducting hydrobiological research, the constant monitoring of water in aquaculture and to be able to analyze the monitoring results and monitoring of diseases in fish and other aquatic animals grown in aquaculture conditions, their causes and treatment methods

RESEARCH

University works directly with researchers in order to minimize or prevent damage to aquatic ecosystems. Tahir Javadzadeh, a doctoral student of the Department of Analytical Chemistry of the Chemistry Faculty of Baku State University (BSU), has successfully completed his 3-month research work at La Sapienza University of Italy. Tahir Javadzade obtained a natural sorbent from food waste at the "Ingegneria Chimica Materiali Ambiente" department under the scientific guidance of Professor Luca Di Palma of La Sapienza University. This sorbent could remove heavy metals from wastewater. The possibility of applying natural sorbents that remove copper from wastewater with a high percentage in the treatment of oil-contaminated waters of the Absheron Peninsula is also included in the research plan. 14.4 Water sensitive waste disposal

Baku State University (BSU) employee Reyhan Mirsultanova's project "Decomposition of various pollutants in the water environment", which won the individual grant competition "Make the Idea Real 2022" of the Youth Foundation of the Republic of Azerbaijan, has been finalized. The water cleaning robot developed within the project is designed to collect various waste in the water environment.

One of the priority scientific-research areas of the Faculty of Biology (Department of Zoology and Physiology) is “Direction 4: Monitoring under the influence of growing anthropogenic factors”. The academic teaching staff of the department successfully carries out research in this direction. Saprobity index in river ecosystems and other water basins of Azerbaijan were calculated using microbenthic organisms as indicators. Decree of the President of the Republic of Azerbaijan on approval of the National Strategy and Action Plan for the protection and sustainable use of biodiversity in the Republic of Azerbaijan. To conduct a study of the species composition and ecology of active filter organisms of the marine ecosystem, and to carry out biomonitoring by identifying indicator organisms, which are the main test-object of the saprobic index.

CURRENT SITUATION

BSU tries to minimize the waste of plastic and paper within the university. It is forbidden to use any plastic bottle in canteens that are in different buildings. Recycle bins for both plastic and paper waste were placed in the buildings.

The club of Sustainable Harmony of Nature was created by the faculty. Students are trained and the aim is to raise awareness to protect aquatic and terrestrial ecosystems. The aim of the organization of the club “Sustainable Harmony of Nature” is ensuring students understand nature, analyze the processes occurring in living systems, and propagate the creation and protection of sustainable stability in nature.

The academic staff of the faculty conducts biomonitoring of organic pollution in the Caspian Sea based on the use of free-living ciliates as test-objects.

Barbara Wojtasik, Professor of the Department of Genetics and Biosystematics of the Faculty of Biology of the University of Gdansk, Republic of Poland, was a guest of the faculty. Within the framework of the meeting, the issues of applying methods related to water biomonitoring were discussed, and a seminar was organized on this subject. It is planned to prepare a project together with the academic staff of the faculty.

Reyhan Mirsultanova' project titled "Decomposition of various pollutants in the water environment" won in the grant competition "Make the Idea Real 2022". The water cleaning robot developed within the project is designed to collect various wastes in the water environment.

BSU collaborates with "Azersu" Open Joint Stock Company and Ministry of Ecology and Natural Resources. "Azersu" Open Joint Stock Company and Baku State University signed a Memorandum on "Cooperation in the field of science, education and study". As part of this collaboration the project "Methods of efficient use of water" was realized.

Baku State University (BSU), Izmir Institute of High Technology and "Lu-Mun Holding" have started a joint scientific research project with the aim of investigating the morphological differences of Caspian sturgeons (Acipenseridae) at the genome level. The main goal of the project is to study the morphological changes in sturgeon species at the molecular level and to determine whether this belongs to a new species.

KEY FINDINGS

The provided information in the report suggests several key findings regarding Baku State University's initiatives for sustainable aquatic ecosystems and resources:

Educational Programs	The university offers a range of educational programs, including courses on freshwater ecosystems and aquaculture, aiming to educate and raise awareness about sustainable water management and conservation practices.
Outreach and Awareness	BSU conducts outreach programs to engage students in the practical application of their knowledge, particularly in combating overfishing and raising awareness about harmful fishing practices. This hands-on approach helps bridge the gap between theory and practice.
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	harmful fishing practices. This hands-on approach helps bridge the gap between theory and practice.
Scientific Research	The university actively engages in scientific research, including ecological studies of lakes and adjacent areas, which contribute to the understanding of the state of aquatic ecosystems and the development of sustainable water management practices.
Collaboration with Industries	BSU collaborates with industries to research and implement technologies and practices that minimize damage to aquatic ecosystems. This demonstrates the university's commitment to finding real-world solutions to pressing environmental issues.
Water Quality Standards	The university has developed water quality standards and guidelines for water discharges, indicating a commitment to upholding water quality standards that protect ecosystems and human health.
Plastic Waste Reduction	A proactive approach to reducing plastic waste on campus is evident through initiatives such as prohibiting plastic bottle use in canteens and the placement of recycling bins. This effort aligns with broader environmental sustainability goals.
Marine Pollution Policies	BSU has policies in place to prevent and reduce marine pollution, particularly from land-based activities. This demonstrates the university's commitment to minimizing its environmental footprint.
Local Ecosystem Stewardship	The creation of the "Sustainable Harmony of Nature" club and initiatives to minimize physical, chemical, and biological alterations of local ecosystems highlight BSU's efforts to engage the community and raise awareness about ecosystem protection.
Community Collaboration	Collaborative agreements with organizations such as "Azersu" Open Joint Stock Company and the Ministry of Ecology and Natural Resources underscore BSU's

	commitment to working with the local community to address water management and conservation challenges.
Watershed Management Strategy	The university has implemented a watershed management strategy, with research projects focusing on the Caspian sturgeon species. This highlights the commitment to protecting and maintaining the diversity of aquatic species in the region.

These key findings reflect the university's multifaceted approach to promoting the conservation and sustainable use of aquatic ecosystems, encompassing education, research, community engagement, and practical measures to address environmental challenges in line with Sustainable Development Goal 14.

FUTURE GOALS

To further enhance its efforts in promoting the conservation and sustainable use of aquatic ecosystems and resources, Baku State University (BSU) can consider the following future steps: