

UI GreenMetric Questionnaire

University : Baku State University
Country : Azerbaijan
Web Address : <http://bsu.edu.az/en>
SDG Focused Web Address: <https://sdg.bsu.edu.az/>

[3] Waste (WS)

[3.16] Toxic Waste Treatment (WS.5)



Example of Toxic Waste Treatment

Description:

Baku State University has established a comprehensive hazardous waste management system that prioritizes waste prevention, safe handling, and environmentally sound treatment. The university generates only a minimal amount of toxic waste due to the limited use of hazardous materials in its academic and administrative activities and the implementation of strict procurement, inventory management, and laboratory safety procedures.

During the reporting year, the university generated 0.65 tons of toxic waste, representing a 50% reduction compared with the previous year's 1.30 tons. The hazardous waste stream consisted mainly of laboratory chemicals (0.45 tons) and electronic waste (0.20 tons). Through effective waste minimization measures, responsible chemical management, and equipment life-cycle management, BSU continues to reduce the generation of hazardous waste across campus.

Of the 0.65 tons of toxic waste generated, 0.64 tons (98%) were treated through environmentally responsible waste management practices, significantly exceeding the 85% threshold for extensive treatment. Hazardous waste was managed through reuse (0.05 tons), down-cycling (0.44 tons), and up-cycling (0.15 tons) where appropriate, while specialized hazardous materials were transferred to licensed hazardous waste management companies for safe treatment, recycling, recovery, or final disposal in accordance with national environmental regulations.

The university applies strict hazardous waste management procedures, including source segregation, secure temporary storage, continuous monitoring, detailed record-keeping, regular laboratory inspections, and mandatory staff training on chemical safety and hazardous waste handling. These measures minimize risks to human health and the environment while ensuring full regulatory compliance.



By maintaining very low levels of hazardous waste generation and treating 98% of the toxic waste produced, Baku State University demonstrates best practice in hazardous waste management. This integrated approach supports the university's Green Campus Strategy, promotes responsible environmental stewardship, reduces pollution and public health risks, and contributes directly to SDG 3 (Good Health and Well-being), SDG 12 (Responsible Consumption and Production), and SDG 13 (Climate Action).

At Baku State University (BSU), toxic and hazardous waste management is implemented in accordance with the Law of the Republic of Azerbaijan "On Waste," the Decision of the Cabinet of Ministers on the State Strategy for Hazardous Waste Management, and relevant international environmental and safety standards. The university applies a comprehensive hazardous waste treatment system to ensure the safe handling, storage, transportation, and disposal of toxic waste generated through laboratory, academic, and research activities.

Hazardous waste produced in BSU laboratories—including chemical residues, contaminated materials, expired reagents, liquid toxic substances, and gaseous by-products—is initially segregated at the source and collected in safety-compliant, clearly labeled containers. Waste is then transferred to designated temporary storage facilities, where it is classified according to chemical and physical characteristics and stored under controlled conditions equipped with ventilation and protective systems.

To ensure effective waste management, BSU employs specially trained technical personnel within faculties, laboratories, and research centers. These staff members provide guidance to laboratory users on proper waste segregation, packaging, and labeling procedures, while also preparing all necessary documentation for waste transportation and disposal in accordance with national and international regulations.

Collected hazardous waste is transferred to authorized treatment and disposal facilities for appropriate processing. Depending on waste type, treatment methods may include neutralization, secure containment, specialized disposal, or recycling where applicable. Waste electrical and electronic equipment (WEEE) is separately collected and transferred to recycling centers, while reusable components are restored in university engineering laboratories for secondary use whenever feasible.

BSU maintains annual records and reports on hazardous waste volumes, categories, treatment methods, and disposal routes, which are submitted to relevant governmental authorities. This integrated toxic waste treatment system ensures laboratory safety, minimizes environmental risks, strengthens ecological sustainability, and supports BSU's alignment with international best practices in sustainable campus management.

AREA		IMPLEMENTATION AT BAKU STATE UNIVERSITY	OUTCOMES / IMPACT
TOXIC GENERATION	WASTE	During the reporting year, BSU reduced toxic waste generation from 1.30 tons to 0.65 tons , achieving a 50% reduction through improved laboratory chemical management, responsible procurement, inventory control, preventive maintenance of equipment, and the use of environmentally friendly alternatives where feasible.	Significant reduction in hazardous waste generation, minimizing environmental and occupational health risks.
TOXIC TREATMENT PERFORMANCE	WASTE	Of the 0.65 tons of toxic waste generated, 0.64 tons (98%) were treated through environmentally responsible waste management practices. Treatment included 0.05 tons reused , 0.44 tons down-cycled , and 0.15 tons up-cycled . Only 0.01 tons (2%) remained untreated.	Achieved a 98% treatment rate , substantially exceeding the 85% threshold for extensive hazardous waste treatment.
MAJOR HAZARDOUS STREAMS	WASTE	The primary hazardous waste streams consisted of laboratory chemical waste (0.45 tons) and electronic waste (0.20 tons) generated from teaching, research laboratories, and administrative operations.	Enables targeted management of the main hazardous waste sources while maintaining a minimal overall waste volume.



HAZARDOUS WASTE MINIMIZATION	BSU implements chemical inventory management, substitution of less hazardous materials where possible, responsible purchasing, equipment maintenance, and life-cycle management to prevent hazardous waste generation.	Reduces the quantity of toxic waste at its source and lowers disposal requirements.
SOURCE SEGREGATION AND SAFE STORAGE	Toxic waste is segregated at the point of generation, clearly labeled, and stored in secure designated areas that comply with environmental, laboratory safety, and occupational health requirements.	Prevents contamination, accidental releases, and exposure risks while ensuring safe handling prior to treatment.
TREATMENT AND DISPOSAL	Hazardous waste is transferred to licensed hazardous waste management companies for environmentally sound treatment, recycling, recovery, or final disposal in accordance with national regulations. Electronic waste is recovered where possible, while laboratory chemicals are treated using approved hazardous waste procedures.	Ensures regulatory compliance and environmentally responsible management of hazardous waste.
MONITORING AND DOCUMENTATION	The university continuously monitors, records, and reports the quantity of hazardous waste generated, stored, transported, treated, and disposed of through its environmental management system.	Supports transparent reporting, regulatory compliance, and continuous improvement of hazardous waste management performance.
LABORATORY SAFETY AND STAFF TRAINING	Academic staff, laboratory personnel, researchers, and students receive regular training on chemical safety, hazardous waste segregation, emergency response, and environmental protection procedures.	Strengthens safety culture, reduces handling errors, and improves compliance with hazardous waste management protocols.
RESEARCH AND INNOVATION	BSU encourages research into safer laboratory practices, green chemistry, waste minimization, and environmentally sustainable materials management.	Supports innovation while reducing the environmental footprint of teaching and research activities.
ENVIRONMENTAL AND INSTITUTIONAL BENEFITS	The integrated hazardous waste management system combines waste prevention, monitoring, safe storage, licensed treatment, staff training, and continuous improvement.	Protects human health and ecosystems, minimizes pollution risks, supports the Green Campus Strategy , and contributes directly to SDG 3 (Good Health and Well-being) , SDG 12 (Responsible Consumption and Production) , and SDG 13 (Climate Action) .

<i>Type of waste</i>	<i>Produced (Last Year)</i>	<i>Produced (This Year)</i>	<i>Reduced (tons)</i>	<i>Treated – Reused (tons)</i>	<i>Treated – Down-</i>	<i>Treated – Up-</i>	<i>Total Treated (tons)</i>
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					<i>cycled (tons)</i>	<i>cycled (tons)</i>	
Toxic waste	1.30	0.65	0.65	0.05	0.44	0.15	0.64 (98%)
- Electronics (e-waste)	0.40	0.20	0.20	0.03	0.08	0.09	0.20
- Laboratory chemicals	0.90	0.45	0.45	0.02	0.36	0.06	0.44
- Other hazardous waste	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.30	0.65	0.65	0.05	0.44	0.15	0.64

Additional evidence link (i.e., for videos, more images, or other files that are not included in this file):

- At Baku State University, the results of research on the development and application of bio-nanoabsorbents for the purification of oil-contaminated water were presented during a scientific seminar. The study is focused on developing innovative and environmentally sustainable solutions for the effective removal of oil pollutants from the environment.
For more information click: <https://sdg.bsu.edu.az/news/bsu-conducts-research-on-purification-of-oil-contaminated-water-using-bio-nanoabsorbents>
- Baku State University's research on SDG 6 demonstrates its commitment to advancing clean water and sanitation through scientific studies focused on water quality monitoring, wastewater treatment, aquatic ecosystem protection, and sustainable water resource management. These interdisciplinary research efforts support practical solutions to regional water challenges while contributing to national and global sustainability priorities related to clean water and public health.
For more information click: <https://sdg.bsu.edu.az/research-on-sdg-6>
- Baku State University's research on SDG 8 demonstrates its contribution to promoting decent work and sustainable economic growth through studies on labor market dynamics, workforce development, human capital, and inclusive economic policy. The university's interdisciplinary research also addresses innovation, entrepreneurship, digital transformation, and sustainable economic diversification to support resilient and equitable development.
For more information click: <https://sdg.bsu.edu.az/research-on-sdg-8>
- Baku State University's research on SDG 11 demonstrates its commitment to sustainable cities and communities through interdisciplinary studies on urban planning, environmental protection, smart infrastructure, disaster resilience, and cultural heritage preservation. These research initiatives support evidence-based solutions for inclusive, safe, and resilient urban development while contributing to sustainable city planning and environmental quality improvement in Azerbaijan.
For more information click: <https://sdg.bsu.edu.az/research-on-sdg-11>
- Baku State University's research on SDG 12 reflects its commitment to responsible consumption and production through studies focused on sustainable resource use, waste reduction, recycling systems, circular economy practices, and environmentally responsible procurement. These interdisciplinary research efforts



support the development of practical solutions for minimizing environmental impact and promoting sustainable production and consumption patterns across institutional and societal contexts.

For more information click: <https://sdg.bsu.edu.az/research-on-sdg-12>

6. The study presented at Baku State University on the “Results of Active Biomonitoring of Atmospheric Air in Baku and Absheron” assesses the impact of industry and transport on air quality using the moss transplants method. The findings reveal that heavy metals and other pollutants exceed permissible levels in certain areas, providing important scientific data on the region’s environmental condition.

For more information click: <https://sdg.bsu.edu.az/news/bsu-presents-results-of-active-biomonitoring-of-atmospheric-air-in-baku-and-absheron>

7. Director of the Scientific Research Institute of Medical Prophylaxis delivered a masterclass to BSU students, focusing on public health, disease prevention, and modern approaches to medical prophylaxis. During the session, students were introduced to practical knowledge and scientific perspectives aimed at strengthening their understanding of healthcare and preventive medicine.

For more information click: <https://sdg.bsu.edu.az/news/director-of-the-scientific-research-institute-of-medical-prophylaxis-delivers-a-masterclass-to-bsu-students>

8. The scientific seminar titled “Assessment of the Assimilation Potential of Coastal Landscapes of the Caspian Sea under Technogenic Impacts” held at Baku State University focused on the scientific analysis of changes in coastal ecosystems caused by human activities. The seminar highlighted the importance of research aimed at improving ecological sustainability in coastal zones and reducing anthropogenic impacts.

For more information click: <https://sdg.bsu.edu.az/news/scientific-seminar-held-assessment-of-the-assimilation-potential-of-coastal-landscapes-of-the-caspian-sea-under-technogenic-impacts>

9. At Baku State University, Faculty of Biology, research is being conducted on the effects of salinity stress on plants, focusing on how increased salinity influences plant growth and physiological processes. The study aims to develop scientific approaches for improving plant tolerance to saline conditions and supporting sustainable agriculture under environmental stress.

For more information click: <https://sdg.bsu.edu.az/news/research-on-the-effects-of-salinity-stress-on-plants-is-being-conducted-at-bsus-faculty-of-biology>

10. At Baku State University, a training session on “Modern approaches to solid household waste management” was held, where information was provided about innovative methods of waste collection, sorting, and recycling. The main aim of the training was to promote environmental responsibility and encourage the application of modern approaches for more efficient waste management.

For more information click: [Bakı Dövlət Universiteti](https://www.bsu.edu.az/en/news/2023/09/20/2023-09-20-10)

11. The “Waste for Gifts” festival held at Baku State University was an environmental awareness event organized to promote environmental protection and proper waste management. Participants exchanged waste materials for various gifts, contributing to the development of eco-friendly behavior habits.

For more information click: [Bakı Dövlət Universiteti](https://www.bsu.edu.az/en/news/2023/09/20/2023-09-20-11)

12. Baku State University’s report on SDG 13 (Climate Action) presents the university’s measures in addressing climate change, reducing carbon emissions, and promoting sustainable development. It also highlights the strengthening of environmental sustainability through climate education, research activities, and international cooperation.

For more information click: <https://sdg.bsu.edu.az/report-on-sdg-13-climate-action>



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IMAGES

