

Bukhara State University Sustainability report



Introduction;

I. In the 2021-2026 Environmental Sustainability Strategy Plan, Bukhara State University focuses on the following priorities:

- 1. Research.** Promote research and activism on environmental sustainability.
- 2. Curriculum .** All educational areas are teaching students the science of ecology and environmental protection.
- 3. Energy .** Switching from alternative energy to lighting and heating buildings to reduce carbon emissions associated with energy consumption.
- 4. National project "Green Space" .** To increase the biodiversity of the university and enrich the species composition. Study of existing trees. Creation of the University "Green Space" platform.
- 5. Waste problem .** Development of technology for neutralization and processing of waste generated on the territory of the university.

2. The strategy is based on this principle:

S Introduction of environmental and environmental sustainability into the University's management and decision-making system;

S In the first phase, develop an annual reporting system on carbon emissions and impacts on biodiversity.

S Develop a broad partnership program with staff and students to support and engage with the strategy.

S Developing comprehensive projects and attracting international grants

Organization of environmental actions among employees and *students*

Increase the participation of employees and students in the nationwide project "Green Space".

S Increase health and wellness activities

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3. The following approaches are used in the implementation of the strategy:

1. Systematization and improvement of the regulatory and legal base -

implementation of international norms, codification of environmental legislation, introduction of environmental insurance, audit and strategic environmental assessment system, integration of environmental certification into the system of conformity certificate, development and implementation of modern methods of environmental pollution calculation. reach;

2. Greening of the economy - rational use of natural resources in such a way as to exclude their destruction, mandatory ecological expertise, evaluation of the possibilities of restoring the potential capacity of ecosystems;

3. Improvement of the economic mechanisms of the use of nature - the dependence of the amount of payment for disposal of waste on their size and danger to the environment and public health, the optimal level of financing of environmental protection from the budget;

4. Strengthening control in the field of environmental protection and rational use of nature - clearly demarcating the rights and powers of state bodies in the field of environmental protection, optimally centralizing all environmental bodies within a single state body, and giving it the necessary, justified powers to make decisions, acceptable level of material and technical equipment of control bodies;

5. Carrying out complex environmental monitoring - improving the unified state ecological monitoring system of the natural environment, forming a fund of information resources;

6. Development of innovative technological processes and methods — investing in the scientific development of environmentally friendly technologies, production, raw materials, types of materials, products and equipment, researching the vulnerability of ecosystems and the impact of the level of environmental pollution on public health and environmental objects;

7. Formation of ecological culture and education — organization of a complex system of continuous ecological education of the population, involving the civil society institutions, participation of the population in making decisions on environmental issues;

8. Strengthening international cooperation - participation in the efforts of the international community to maintain a safe level of the environment and combat climate change, attracting additional foreign investments in environmental protection and rational use of nature.

9. Preservation and restoration of flora and fauna objects

4. By environmental scientists of Bukhara State University

4.1. Water and air pollution monitoring technologies.

4.2. Conservation Science and Technology Research.

4.3. Environmental education, training and promotion of specialists.

4.4. Management of nature conservation processes and protection of biological species.

4.5. Environmentally friendly production technology.

4.6. Laws, regulations, policies and standards in the field of natural resources and environmental protection, including environmental standards for industrial production and products.

4.7. Scientific and practical work is being carried out in other areas of cooperation related to environmental protection and improvement agreed by the parties.

5. Chemical scientists of Bukhara State University are carrying out the following scientific research works on ecological and environmental stability.

5.1. Before chemical treatment of waste water of a textile enterprise, it is necessary to carry out a chemical analysis of the composition of waste water leaving the workshop.

5.2. According to the results of the chemical analysis of the wastewater composition, it is necessary to calculate the amount of reagents (iron (II) sulfate, lime solution, unifloc) needed for water treatment. In this process, it is necessary to cool the temperature of the wastewater to 25 0C, and to determine the environment (rN) of the wastewater.

5.3. After treating the wastewater with chemical reagents, it is stored in water storage ponds (the pond size is 1500-2000 m³, there must be at least 2 ponds) for at

least 30 minutes.

5.4. The pond is constantly cleaned by means of a device for collecting sediment from the bottom of the pond.

5.5. The content of treated wastewater is chemically analyzed again and sent to the sewage system.

6. National project "Green space" . As part of the nationwide project "Green space" announced by the President of the Republic of Uzbekistan Shavkat Mirziyoyev, large-scale works are being carried out to plant 200 million trees and shrubs per year and thereby increase the number of green spaces in our country. More than a thousand trees have been planted at the Bukhara State University within the framework of this project. In the future, within the framework of this project, it is planned to create national parks of the university, and to hold "One student - one seedling" actions. In addition, it is planned to do the following.

6.1. Together with the youth union of Bukhara State University and the Bukhara regional branch of the Ecological Party of Uzbekistan, the formation of a careful attitude towards the environment in young people, the way to protect nature, air, water and soil pollution, damage to flora and fauna organization of environmental actions aimed at prevention;

6.2. Youth Union of Bukhara State University to conduct social research at least once a year to study the opinion of professors and students on current issues of environmental protection.

Solving institutional problems of environmental protection at the university

Formation of sectors on issues of sustainable development at Bukhara State University, as well as the development of concepts for the development of economic sectors, taking into account ecological issues.

Environmental protection and economic regulation of nature use is an extremely important condition for conducting an effective environmental policy at the university.

6.3. Supervision of the university in the field of environmental protection and rational use of nature

Control in the field of environmental protection and rational use of nature is the main means of ensuring compliance with the requirements of nature protection legislation.

6.4. Scientific provision of environmental protection

Creation of favorable conditions for human health, maintenance of ecological balance, rational use of nature without plundering requires application of modern ecologically neutral technologies in all spheres of human life and activity.

Scientific research in the field of environmental protection should be carried out by state-ordered scientific institutions with the help of budget programs and grants, including international grants.

Including:

5330666- TEMPUS-1-2012-1-LT-TEMPUS-JPCR—UZWATER:

Implementation of the project "Creation of a master's degree program on environmental protection and sustainable development based on water resources management in the higher education system of Uzbekistan".

Implementation of the "UZHEALTH: Environmental protection and human health" project

BioEcUz: Within the framework of the project "New master's study program on sustainable Bioeconomy in Uzbekistan", university scientists conducted scientific and practical work with foreign partners.

Currently, one of the important tasks is to further increase scientific activity in the field of environmental protection.

6.5. Public participation in environmental decision-making at the university

Environmental protection problems cannot be solved without the broad participation of university professors and students. In this regard, the level of environmental knowledge of employees is of particular importance.

Currently, there is no practice of holding public hearings on the implementation of environmentally potentially dangerous projects, as well as including civil society institutions in working groups on the development of normative legal documents in the field of environmental protection.

In addition, there is no system of environmental education for the population.

7. Cooperation.

International environmental cooperation is of great importance in the protection of the natural environment, in which there is an international agreement on nature protection by all countries of the earth, the conclusion of agreements, conventions, the development of international environmental standards and the joint control of their compliance, global and a complex of large-scale measures, such as the joint solution of regional environmental problems, scientific research and holding various international conferences.

Also, today, 6 of the 14 existing specialized organizations of the UN deal with issues related to environmental protection. In particular:

UNESCO - one of the main directions of activity of the organization dealing with issues of education, science and culture is aimed at education and training of personnel in the field of environmental protection, popularization of positive experiences on rational use of natural resources, conducting scientific research.

FAO - Food and Agriculture Organization. It deals with the problems of integrated use of land, water, plants and animals, and their productivity improvement.

WHO is an international health organization. He deals with sanitary and hygienic issues of environmental protection.

IOM is an international meteorological organization. Dealing with general planetary changes in climate.

DMT is an inter-state consultative organization on the seas. This organization deals with the environmental aspects of the use of the world's seas and oceans.

, serious attention is paid to environmental protection in the activities of ECOSOC, the UN's council dealing with social and economic issues.

Bukhara State University and the Scientific Research Institute of Environment and Nature Protection Technologies under the State Committee for Ecology and Environmental Protection of the Republic of Uzbekistan on the

improvement of scientific research activities and environmental education in the field of ecology and environmental protection. On April 11, 2022, an agreement was signed for the years 2022-2026. Similarly, the Decree of the President of the Republic of Uzbekistan "On approval of the concept of development of the higher education system of the Republic of Uzbekistan until 2030" dated October 8, 2019 No. PF-5847 and the Decree of the President of the Republic of Uzbekistan dated October 16, 2021 - in order to ensure the implementation of statement No. 34 of the video selector meeting held in June "On the effectiveness of reforms in the field of higher education and the processes of preparation for the new academic year", Department of Ecology and Geography of Bukhara State University and Bukhara Region. On March 3, 2022, an agreement on mutual cooperation was signed between the Department of Ecology and Environmental Protection.

8. Organization of practices . On March 3, 2022, an agreement on mutual cooperation was signed between the Department of Ecology and Geography of Bukhara State University and the Department of Ecology and Environmental Protection of Bukhara Region. Based on this agreement, students are agreed to spend 4 weeks in 3 courses and 7 weeks in 4 courses in the laboratories of the department and in the district departments of the department. Production practices are organized together with management staff and university professors. At the end of the production practice, reports are accepted together with the employees of the Department and university professors. Qualification practices are organized by the university in order to enrich students' practical skills in different regions of Uzbekistan: mountain zones, lakes, water reservoirs.

9. Ways to solve environmental problems

The following tasks are set before the scientists at the university: joint development and adoption of uniform norms and standards of environmental quality, as well as preparation of specialists in the field of environmental protection according to a uniform methodology for the countries of the region.

1. In the field of reducing desertification and land degradation, restoring the quality and productivity of land areas:

1.1. Creating the capacity to introduce comprehensive planning and management of land resources;

1.2 Ensuring sustainable management of forest resources, pastures and livestock, as well as water and land resources;

1.3 Participation in the increase of areas planted with pine trees on the dry bottom of the Aral Sea on the Uzbek side;

1.4 Development and implementation of a complex of forest amelioration activities by creating tree strips enclosing fields and strengthening shores, clearing hillsides, planting forest and fruit trees;

1.5 Ensuring the widespread introduction of crop rotation in the care of agrotechnical crops;

1.6 Development and implementation of a program for restoration and recultivation of disturbed lands;

1.7 To ensure the reconstruction and restoration of the collector-drainage network in order to improve land reclamation, as well as to build new reservoirs to improve the water supply of irrigated lands;

1.8 Ensure gradual replacement of mineral fertilizers with organic fertilizers and wide introduction of biological methods of combating agricultural pests;

1.9 Development and adoption of the legal framework for the development of organic agricultural production;

2. In the field of water resource depletion and pollution protection:

2.1 Reducing losses of water resources in agriculture and communal sector;

2.2. Reducing the weight of water consumption in agriculture;

3. In the field of atmospheric air protection:

3.1. Studying how to ensure the reduction of the release of pollutants into the atmosphere;

3.2 Creation of the scientific basis for increasing the share of renewable alternative sources in the total structure of electricity generating capacities;

transfer of transport to gas cylinder fuel, electric power and other alternative

fuels, as well as the establishment of appropriate road infrastructure;

3.3 Development of comparative standards for the release of pollutants generated in the production of electricity and thermal energy;

3.4 Studying the use of dust and gas trapping devices with an efficiency of not less than 99.5 percent in the stationary sources of atmospheric air pollution of newly commissioned production facilities;

4. In the field of preserving and increasing biological resources, as well as increasing the quality and volume of forest stock:

4.1 Studying the areas of protected natural areas of categories I — V by covering all types of ecosystems equally and ensuring the ecological connection of the network of all protected natural areas;

4.2 Familiarity with the technology of keeping rare and endangered species of wild animals and wild plants in genetic banks;

4.3 creation of a single information base of state cadastre data of fauna and flora objects, protected natural areas and monitoring based on modern information technologies for their protection and rational use;

clearing of natural reserves of wild species of medicinal, nutritious and technical plants;

4.4 Making recommendations on the expansion of existing nurseries and the creation of new ones for the reproduction of endangered animals ;

Studying the reproduction of the beautiful canvases grown in nurseries, included in the Red Book, and released into the wild;

4.5 Increasing the number of gazelles in the Bukhara specialized "Jayron" kennel, establishing new populations of gazelles in newly created protected natural areas;

development of a mechanism for assessing the economic value of biodiversity and ecosystem services;

4.6 As part of the "green belt" action, a 10- kilometer four-lane wide green belt was built around the city of Bukhara in the Bukhara region under a project worth 849 million soums. 14 thousand 880 ornamental tree saplings were planted in

this area . Doing it again

4.7 Development of regulatory legal documents encouraging the use of renewable energy sources, including the introduction of a special purchase tariff ("green tariff") for the supply of electricity from renewable energy sources to the grid; At Bukhara State University today, the use of alternative energy has been introduced, and in the future it is planned to use alternative energy for lighting the university buildings.

4.8 Creating an electronic ecological map of the republic in order to ensure the openness and transparency of information about the state of the environment and possible ecological threats at the university;

Ensuring monitoring of the level of atmospheric air pollution with measured solid particles with an aerodynamic diameter of no more than 10 microns (PM10), including solid particles with an aerodynamic diameter of no more than 2.5 microns (PM2.5) in the university area ;

Improvement of the system of indicators for assessing the state of environmental objects at the university and development of efficiency criteria for the implementation of nature protection measures;

providing state bodies, public organizations and residents with reliable information about the state of the environment;

in the field of scientific provision of environmental protection: development and improvement of the system of exchange of scientific and technical information;

To create a mechanism that ensures the transformation of scientific ideas of university scientists into concrete industrial examples of equipment aimed at nature protection and their implementation in the technological process;

ensuring the development of environmentally friendly and resource-saving technologies, productions, raw materials, materials, products and equipment;

to provide research on the vulnerability of natural systems and sectors of economic activity to possible global and regional climate changes, to develop scientific bases for identifying environmental risks;

to provide analysis of the spread of alien and genetically modified species

of living organisms and to develop appropriate methods for controlling these processes and reducing the level of their negative consequences;

organization of systematization of accumulated knowledge in the field of environmental protection and coordination of scientific research in this regard;

to ensure the scientific and methodical justification of new standards for water consumption, water supply and quality standards of drinking water sources;

development of the methodology of ecological zoning of regions, as well as revision of the criteria for assessing the level of pollution of water bodies and drinking water to determine the most dangerous areas for health;

Participation of civil society institutions in environmental protection issues, as well as in the field of creating a continuous system of environmental education:

regular preparation and publication of national reports on the state of the environment and the use of natural resources;

creation of an effective mechanism to ensure public participation in decisions of ecological importance;

of the institute of public environmental protection inspectors ;

improvement of the continuous environmental education system by introducing the issues of ecology, environmental protection and sustainable development into educational programs at all levels;

providing training of specialists in the field of ecology for all levels of the educational system, as well as retraining and upgrading of personnel.

9. Problem solving and suggestions.

1. Ensuring a comfortable environment as a necessary condition for improving the life and health of employees and students of Bukhara State University;

2. Sustainable economic development due to the introduction of innovative technologies that reduce the negative impact on the environment and the health of employees and students;

3. Ensuring rational use of environmental objects and restoration of biological resources.

4. Ensuring preservation and protection of environmental objects (land, water, atmospheric air, subsoil, flora and fauna) on the territory of the university;

5. Improving public control in the field of environmental protection and rational use of nature, as well as the system of ecological monitoring of the environment;

6. Scientific provision of environmental protection;

7. To increase the environmental culture of university employees and students, to increase the level of transparency of the activities of state bodies in the field of environmental protection, and to strengthen the role of civil society;

8. Formation of a society that ensures sustainable development with minimal impact on the environment;

9. Expansion of international cooperation in the field of environmental protection.

10. Management

Integrating environmental sustainability into University governance and decision-making.

University priority. New Environmental Sustainability Teams will be created to oversee the implementation of the strategy, reporting to the Scientific Council.

11. Reporting

The first step is to develop an annual reporting system on carbon emissions and impacts on biodiversity.

BUKHARA STATE UNIVERSITY NET-ZERO PLAN

Introduction:

Bukhara State University is committed to leading the way towards a sustainable future by implementing a comprehensive net-zero plan. This plan outlines the actions and interim targets that the university will undertake to achieve carbon neutrality and reduce its environmental impact significantly.

Vision:

By 2045, Bukhara State University envisions itself as a carbon-neutral institution, where all emissions are balanced by equivalent carbon removal, energy efficiency and sustainable practices. The university will be recognized as a sustainability leader within the higher education community, inspiring students, staff and the broader community to become environmentally conscious global citizens.

Actions and Interim Targets:

1. Energy Efficiency and Renewable Energy:

Interim Target 1 (2026): Install solar panels on university buildings to generate 50% of the total energy demand on-campus.

Interim Target 2 (2028): Increase energy efficiency by 20% through building retrofitting and technology upgrades.

Interim Target 3 (2030): Implement smart energy management systems to optimize energy consumption and reduce wastage.

2. Sustainable Transportation:

Interim Target 1 (2026): Increase the use of electric and hybrid vehicles in the university's transport fleet to 20%.

Interim Target 2 (2026): Encourage the use of bicycles and promote public transportation among students and staff, aiming to reduce single-occupancy vehicle trips by 30%.

3. Waste Reduction and Recycling:

Interim Target 1 (2026): Implement a comprehensive waste management system that diverts 30% of waste from landfills through recycling and composting initiatives.

Interim Target 2 (2026): Promote the use of reusable water bottles, containers, and other sustainable practices to reduce single-use plastic consumption by 50%.

Interim Target 3 (2025): Establish partnerships with local recycling facilities and organizations to maximize recycling efficiency and explore innovative waste reduction technologies.

4. Carbon Offset and Removal:

Interim Target 1 (2030): Invest in verified carbon offset projects to offset 10% of the university's remaining emissions that cannot be reduced internally.

Interim Target 2 (2028): Implement afforestation and reforestation projects on campus and in nearby areas to sequester CO₂.

Interim Target 3 (2030): Collaborate with research departments to explore and support cutting-edge carbon removal technologies.

5. Curriculum Integration and Awareness:

Interim Target 1 (2026): Integrate sustainability and climate change topics into 20% of the university's academic programs across disciplines.

Interim Target 2 (2025): Organize sustainability workshops, seminars, and awareness campaigns to engage students, staff, and the local community in sustainable practices.

Interim Target 3 (2025): Establish a sustainability center to promote research, innovation, and outreach in environmental sustainability.

6. Engagement:

Interim Target 1 (2024): Engage with faculty, staff, students, and the local community to gather feedback and ideas for sustainable initiatives.

Interim Target 2 (2025): Establish a sustainability committee comprising representatives from different departments to guide and oversee sustainability efforts.

Interim Target 3 (2026): Foster partnerships with local businesses, government

agencies, and NGOs to leverage resources and expertise for sustainability projects.

Monitoring and Reporting: The university will regularly monitor progress towards achieving interim targets and the net-zero goal. Annual sustainability reports will be published to transparently communicate results, challenges, and future action plans.

By following this net-zero plan with clear actions and interim targets, Bukhara State University aims to lead by example and contribute significantly to the global efforts in combating climate change and securing a sustainable future for all.