INTRODUCTION

Since the United Nations Conference on the Human Environment in 1972, the organizations of the United Nations system have given priority to the protection of the natural environment and related areas, as evidenced by the series of summits and conferences held, conventions and treaties ratified, and resolutions, reports and programs of action adopted by their respective legislative and governing bodies. The Report of the World Commission on Environment and Development *(1987)* and Agenda 21 adopted at the United Nations Conference on Environment and Development *(1992)* were important milestones in this field, as were the three landmark conventions on climate change, biodiversity and desertification. The "The future we want" *(2012)* and the later "2030 Agenda for Sustainable Development *(2015)*", consisting of 17 sustainable development goals, have added momentum. United Nations system organizations have responded enthusiastically to these calls, making efforts to integrate environmental sustainability into their policies, operations and activities.

The concept of sustainable development has traditionally been seen as the integration of the social, political and economic spheres of human activity. The development of innovative financial instruments can contribute to the improvement of sustainable development processes and, with the support of the state, a balanced development of the green investment market can be organized. The world is gradually learning to live within the concept and rules of sustainable development. In 2015, namely on September 25, 193 countries adopted the "Sustainable Development Agenda 2030", which defined 17 global Sustainable Development Goals *(SDGs)*.



REPORT
on the implementation of NSUMT sustainable development program in 2024

Navoi State University of Mining and Technologies actively participates in the development of society, provides equal educational opportunities for all segments of the population, and solves global problems of Navoi region and Uzbekistan. The University recognizes its role in creating an equitable, educated, and socially responsible community. We are determined to promote sustainable development in research and education. As a mining and technical university, we can develop solutions to global problems based on sustainable development goals. Navoi State University of Mining and Technologies provides students, teachers, and researchers with an inspiring educational environment that encourages research, experimentation, and the search for the best possible solutions for our common sustainable future. In our activities, we want to ensure the sustainable development of Uzbekistan by balancing three significant elements such as ecology, public interest, and economic development.

The development of our campus is increasingly consistent with the principles of sustainable development. The objectives of the sustainable development strategy of Navoi State University of Mining and Technologies for 2022-2026 are:

- further reducing the environmental impact arising from the university's activities, ensuring activities at a level that, meets the requirements of the Uzbekistan environmental legislation;
- assistance in the realization of the state policy in the field of environmental protection and sustainable development

To achieve these two objectives, NSUMT will focus on:

- improving its environmental and sustainability performance through six topical areas: facilities and infrastructure, energy and climate change, waste management, water, transportation and education;
- further integrating sustainability goals into the university's core missions: education and research;
- encouraging and supporting initiatives of the university community aimed at realizing the UN Sustainable Development Goals.

The proposed measures will significantly reduce the university’s carbon footprint and minimize its impact on the environment.

Analysis of NSUMT Infrastructure Indicators

1. Environment and infrastructure

One of the aspects of the implementation of this indicator is to increase the area of the university covered with vegetation, i.e. creation of new public gardens, including lawns, gardens, green roofs, indoor planting, vertical gardens, etc.

A possible option for implementation is – the involvement of volunteer associations of the university, support of student projects for additional landscaping of the campus, and creation of vertical gardens.

Table 1. The dynamics over time of the most important indicators in the direction of "Environment and infrastructure":

Indicator	2020	2021	2022	2023	2024
Ratio of open space area to total area, %	85% - 90%	90 - 95%	90 - 95%	90 - 95%	90 - 95%
Car park area, m2	13060 m^2	13060 m^2	5909,03 m^2	1350.39 m^2	3978 m^2
Campus area covered with forest vegetation, %	150192,35 m^2	17,6%	23,5%	28%	49.6%
Campus area covered by planted vegetation, %	112331 m^2	20 - 30%	20 - 30%	20 - 30%	24.5%
Total water-absorption campus area, excluding forest and planted vegetation, %	no data	30%	30%	21%	26%

2. Energy and climate change

Indicators: use of energy-efficient appliances, implementation of smart buildings/ building automation/ intelligent buildings, renewable energy policy, total energy consumption, energy conservation programs, green building elements, climate change adaptation and mitigation, greenhouse gas reduction policy and carbon footprint.

The following initiatives are underway at NSUMT in the Energy and Climate Change pillar:

The University is successfully implementing energy efficiency and resource conservation programs, thus all buildings on the university campus have metering devices installed, information from which is fed to the central computer on a monthly basis (automatic reading of metering devices), which allows analysis of water, the energy consumption of each individual building included in the university campus.

"Energy Efficiency Improvement Program of NSUMT for 2022 – 2026"

The University signed an agreement with the Hydrometeorological Service of Navoi Region on environmental monitoring of NSUMT. The conducted calculations confirmed compliance with the current hygienic standards of atmospheric air quality for all harmful substances on the boundaries of the normative territories, emitted by sources of pollutants. According to the performed calculations, the impact on the atmospheric air of the NSUMT site belongs to the enterprises of III category - the object having insignificant negative impact on the environment.

The "Program of Industrial Environmental Control" for NSUMT is being implemented.

University buildings are equipped with an "Automatic control system of energy resources accounting". The work on modernization of illumination in the buildings of the University is continued, in 2023-2024 all lamps were replaced with LED ones. Air conditioners with the highest energy efficiency class were purchased and installed.

The "Capital Repair Program for Dormitories" is being implemented; the student dormitory has been renovated in accordance with modern requirements.

Street lighting on the campus is equipped with LED lamps. Temporal dynamics of the main indicators of NSUMT in the direction of "Energy and Climate Change" is presented in Table 2.

Table 2. Temporal dynamics of key indicators in the direction of "Energy and Climate Change"

Indicators	2019	2020	2022	2023	2024	2025
Utilization of energy-efficient appliances	less than 20%	1-25%	25-50%	50-75%	75%	76%
The cumulative floor area of smart buildings on the main campus (m2)	no data	170388,3	170388,3	170388,3	170388,3	170388,3
Total carbon footprint (COO2 emissions, in the last 12 months, metric tons)	no data	no data	377.5	377.52	322.56	305.10
Total carbon emissions divided by total campus population (metric tons per person)	no data	0,48	0,038	0,037	0,027	0.026
Electricity consumption per year (kWh)	no data	10784508 kWh	438000 kWh	441000 kWh	524000 kWh	357732 kWh (for 9 months)
Total electricity consumption divided by total campus population (kWh per person)	no data	569,60	45.36	44.10	45.36	30.96

3. Waste Management

NSUMT wastes are transferred for disposal to the appropriate organizations having licenses for the relevant types of works:

Hazard Class I wastes *(mercury, fluorescent lamps)* -

Wastes of IV-V class of danger -

The University has introduced separate waste collection. Sorting will save NSUMT from at least 50 percent of waste being transferred to landfills.

The main source of plastic is waste from the Student Catering Complex *(packaging, disposable tableware)*.

NSUMT is already on the way to reducing the use of paper, for example, the use of double-sided printing, the introduction of electronic document flow

This year containers for separate waste collection have been purchased, and

modernization of container sites has been prepared.

Temporal dynamics of the main indicators of NSUMT in the direction of Waste are presented in Table 3.

Table 3. Temporal dynamics of the main indicators in the direction of Waste

Indicator	2020	2021	2022	2023	2024
University waste recycling program	None	Partial (1-25% of waste)	Partial (1-25% of waste)	50-75% implemented	75-100% implemented
A program to reduce the use of paper and plastic on campus	Double-sided printing, printing when necessary (EDMS)	Double-sided printing, printing, when necessary, EDMS, Campus	Double-sided printing, printing when necessary, electronic document management: EDMS, 1C Campus, 1C Occupational Health and Safety, 1C Omega	Double-sided printing, printing when necessary, electronic document management: EDMS, 1C Campus, 1C Occupational Health and Safety, 1C Omega	Double-sided printing, printing when necessary, electronic document management: EDMS, 1C Campus, 1C Occupational Health and Safety, 1C Omega, EDO and HEMIS platforms
Organic waste management	Open dumping Disposal of rubbish, plant matter	1-25% Removal of rubbish, plant matter	1-25% Removal of rubbish, plant matter	Partially treated (75%)	90%
Inorganic waste management	1-25%	1-25%	1-25%	58,4%	98%
Toxic waste management	1%-25% are delivered to specialized organizations for disposal	1%-25% are handed over to specialized organizations for disposal	1%-25% are handed over to specialized organizations for disposal	45,31% effectively managed	76% effectively managed

4. Water Management

The NSUMT campus is undergoing a phased upgrade of its water supply and wastewater disposal systems, in line with the capital improvement program, using modern water conservation measures.

Table 4. Temporal dynamics of the main indicators in the direction of Water

Indicator	2020	2021	2022	2023	2024
Implementation of water saving program	None	Program in preparation (e.g. feasibility study and promotion)	1 - 25% implemented at early stage (e.g. measurement of potential surface runoff volume)	25-50%	50-75%
Use of water saving devices	>75% of water- saving appliances installed	>75% of water-saving appliances installed	>75% of water-saving appliances installed	>75% of water-saving appliances installed	>75% of water-saving appliances installed
Recycled water consumption	None	1-25%	1-25%	25-50%	50-75%

Specialists of Navoi Mining and Metallurgical Combine and scientists of Navoi State University of Mining and Technologies have created an innovative installation for converting underground filtration water into clean drinking water using solar energy. Today, a new type of technique has been installed on the university's territory, and the device serves everyone, especially the residents of the city. The new model of technique is capable of producing 70 dm3 per hour from a 60-metre underground well.

5. Transportation

The territory of NSUMT is equipped with pedestrian paths, which are accessible and equipped from the point of view of safety, convenience and partially - for the convenience of persons with disabilities. The campus is equipped with bicycle parking facilities.

On the territory of the main building parking of vehicles is restricted, entry is possible only with passes to university vehicles and for emergency services.

All NSUMT vehicles undergo maintenance and have certificates of timely technical inspection.

Table 5. Temporal dynamics of the main indicators in the direction of Transport

Indicator	2020	2021	2022	2023	2024
Number of vehicles entering the university daily	75	50	40	30	40
Number of free rentals	no data	no data	15	30	45
Ratio of zero-emission vehicles to total campus population	no data	> 0,002-0,004	> 0,002-0,004	> 0,002-0,004	> 0,004-0,006
Ratio of total number of vehicles (cars and motorbikes) to total campus population	<0,045	<0,045	<0,045	<0,045	0,004
Campus Pedestrian Policy	Pedestrian walkways are accessible and equipped for safety and convenience	Pedestrian walkways are accessible and equipped for safety and convenience	Pedestrian walkways are accessible and equipped for safety and convenience	Pedestrian walkways are accessible and equipped for safety and convenience	Pedestrian walkways are accessible and equipped for safety and convenience (University has its Policy dedicated to Pedestrian safety and Transportation)

6. Education and Research

This indicator includes number of courses/subjects with content related to sustainable development implemented at the university; the total number of courses/subjects offered annually. The University implements number of discipline curricula, as well as educational programs in the areas of sustainable development:

- Renewable Energy;
- Food Biotechnology;
- Public safety, management of occupational, environmental and accident risks;
- Fire safety;
- Production and consumption waste utilization and recycling;
- Ecological safety;
- Ecological engineering and clean energy;
- Environmental protection and resource conservation;
- Life safety in the Technosphere;
- Safety of technological processes and productions;
- Technology of processing of food plant raw materials;
- Sustainable innovation economy;
- Ecology and nature management.

Table 6. Temporal dynamics of the main indicators in the direction of Education and Research

Indicator	2019	2020	2021	2022	2023	2024
Number of sustainability-related courses/subjects offered	85	85	85	150	102	125
Ratio of sustainable development courses to total number of courses/subjects	no data	>8-17%	>10-20%	>20%	>23%	23.2%
Number of sustainability-related publications issued	110	523	473	454	440	645
Number of sustainability-related student events	3	3-4	3-4	5-10	>10	60

7. Gender Equality

Equal rights and freedoms of men and women are guaranteed by the Constitution of the Republic of Uzbekistan. In 2019, the labor force participation rate of women was 55.4 percent *(men - 70.6 percent)*, the employment rate was 52.9

percent *(men - 67.3 percent)* and the unemployment rate was 4.4 percent *(men - 4.8 percent)*. To ensure equality between men and women, Uzbekistan is implementing the National Strategy of Action for Women for 2019-2026, aimed at reducing the gender pay gap *(in 2019, the ratio of women's wages to men's wages was 72.1 percent)*, reducing the number of cases of violence against women, and increasing the number of women in leadership positions in small and medium-sized enterprises.

NSUMT has an Advisory Council on Women's Affairs based on Resolution of the President of the Republic of Uzbekistan No. 5938 dated 18 February 2020 "On measures to improve the social and spiritual environment in society, further support the institution of neighborhood, bringing the system of work with families and women to a new level" and Resolution of the President of the Republic of Uzbekistan No. 4602 dated 18 February 2020 "On the organization of the Ministry of Neighborhood and Family Support of the Republic of Uzbekistan", Resolution of the President of the Republic of Uzbekistan No. 5020 dated 5 March 2021 "On measures to further improve the social and spiritual environment in society". There are Order No. 326 of the Ministry of Higher and Secondary Specialized Education on the establishment of councils of Women, as well as the Order No. 1/281 of Rector of the University issued on 25 June 2020 with the same regard.

An exhibition seminar on "Role of Uzbek women in science and education" was held on 26 February 2021 to develop the talent of our female students, attract them to the University's activities, and prepare them for family life. The seminar is being held annually. Furthermore, exhibition events on the activities of the Young Artist Dance Club, the "Qizlarjon" Club, the "Zulfiyaxonim" Club *(great Uzbek poet)*, and the newly established "Sharq Gavhari" Club are regularly organized at the university. Women professors and teachers of the University give lectures to our students on "The role of Uzbek women in science and education". These professors are a source of pride and example for young girls.

Charitable work is carried out at the university, for instance, five female students in need of social protection were given 200,000 UZS of assistance *(about 20 USD)*. A student of the university Umrzakova Zarina, a disabled person of the 2nd group, was paid 411,000 UZS *(about 40 USD)* for a new sewing machine, 1 million UZS *(about 100 USD)* from the «Solidarity» Fund and 200,000 UZS in January again. The same amounts of charity payment were provided to all girls in need at the university. In collaboration with Navoi Regional and City departments of the neighborhood and family support activities, promotional works are organized. For instance, five of our employees at the university who applied for subsidized housing

and loans were offered 16% of loans and subsidized housing by the city department of social assistance.

As a result of the opportunities being created for women at the university, a number of our female professors have been achieving remarkable success. For instance, in connection with the International Day of Women and Girls in Science, observed on February 11, the Uzbekistan Women Scientists Forum was held in Tashkent on February 10, 2025. As part of the forum, a formal award ceremony was held to honor the winners of the "Women Scientists – 2024" competition.

Two researchers from Navoi State University of Mining and Technologies were among the awardees: Associate Professor Muborak Normatova from the Department of Mining received a grant of 700 million UZS *(about 55300 USD)* for her applied project titled "Ensuring Environmental Safety in Conducting Mining Operations in the Kyzyl-Kum Region". Additionally, Associate Professor Maftuna Akhtamova from the Department of Chemical Technology was awarded a grant of 640 million UZS *(about 50600 USD)* for her applied project on "Developing a Technology for Producing Thermophosphates from Low-Grade Phosphorites".

Navoi State University of Mining and Technologies has developed and is actively implementing a comprehensive program aligned with the United Nations Sustainable Development Goals (SDGs).

The university's long-term sustainable development program encompasses the following key areas:

- Educational and research activities focused on Technosphere safety and the sustainable development of the region;
- Training and capacity building in the assessment of environmental and anthropogenic risks at industrial facilities, institutions, and organizations, as well as strategies for achieving sustainable development through risk mitigation;
- Initiatives to reduce the university's ecological (carbon) footprint;
- Establishment of a responsible waste management system, including the creation of recycling programs, with a primary focus on food waste;
- Development of resource-saving systems, including the efficient use of energy and water, as well as water disposal management;
- Efforts to reduce the university's transportation footprint and promote environmentally responsible procurement practices;
- Creation of an environmentally sustainable university campus infrastructure.

An example of the successful implementation of educational and scientific initiatives is the establishment and effective operation of scientific consortia between university departments and academic research institutes.

All students at NSUMT are required to complete the “Life Safety” course, in which they are trained to assess the environmental impacts of their project proposals. Moreover, students and postgraduate researchers specializing in Technosphere safety, construction, electrical and thermal power engineering, and food technology are engaged in developing specific environmental solutions tailored to the economic and ecological needs of the Navoi region.

Additionally, specialized courses such as *Regional Ecology*, *Methods and Technologies for Environmental Risk Assessment*, *Natural Resource Management*, and *Resource Conservation* have been introduced to further strengthen environmental education.

The university actively organizes Olympiads, competitions, scientific conferences, and youth forums where talented young individuals are awarded grants to implement environmental and social projects that support regional sustainable development.

NSUMT also runs successful programs in energy efficiency and resource conservation. For instance, all campus buildings are equipped with metering devices that automatically transmit data to a central computer system on a monthly basis. This system enables detailed analysis of water and energy consumption for each individual building within the campus.

To promote awareness and engagement, the university holds an annual "Energy Saving Leaders" competition, encouraging students and staff to use electricity and water efficiently. Resource conservation is further emphasized through student leadership meetings, open lectures, and guided visits to the regional demonstration center, *"Energy Saving and Energy Efficiency,"* located within the NSUMT Technopark.

As part of its commitment to renewable energy, NSUMT has implemented a pilot project involving the installation of a 3kW solar power plant on campus for educational and demonstrational purposes.

Navoi State University of Mining and Technologies remains committed to minimizing its environmental impact, fostering a culture of ecological awareness among students and faculty, and fully integrating the principles of sustainable development into its educational, research, and operational practices.


NAVOIY DAVLAT KONCHILIK VA TEXNOLOGIYALAR UNIVERSITETI
2022


SUSTAINABLE
DEVELOPMENT
GOALS