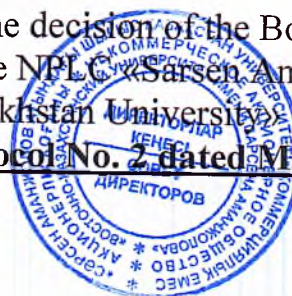


NPLC «SARSEN AMANZHOLOV EAST KAZAKHSTAN UNIVERSITY»

APPROVED

By the decision of the Board of Directors
of the NPLC «Sarsen Amanzholov East
Kazakhstan University»

Protocol No. 2 dated March 28, 2025.



REPORT

**OF THE NPLC «SARSEN AMANZHOLOV EAST KAZAKHSTAN UNIVERSITY»
ON SUSTAINABLE DEVELOPMENT FOR 2024**

First Edition

Copy № _____
Date of Issue _____

Ust-Kamenogorsk

2025

As a regional university, Sarsen Amanzholov East Kazakhstan University (EKU) is committed to the Sustainable Development Goals (SDGs) and the strategy of implementing the university’s third mission: contributing to the socio-economic and cultural development of society — a mission modern universities are expected to fulfill.

In 2024, the university approved a Roadmap for the implementation of the SDGs for 2024–2029. It was developed based on the university’s Sustainability Policy, which serves as a conceptual framework of perspectives, principles, and approaches that integrate educational, managerial, environmental, and socio-cultural aspects of the university’s activities.

The sustainability roadmap consists of three key blocks:

- 1. Education and Research
- 2. Infrastructure and Environmental Management
- 3. Green Energy

The university's performance in achieving the SDGs is assessed based on these blocks.

Key indicators of SDG implementation in 2024:
BLOCK 1: QUALITY EDUCATION, SCIENTIFIC RESEARCH, AND
COMMERCIALIZATION OF SCIENTIFIC PRODUCTS

Table 1: University Criteria and Indicators for SDG Implementation

Criteria	Indicators
Analysis of the demand for specialists in the field of environmental protection and sustainable development.	The demand for specialists from Amanzhol University in the field of environmental protection and sustainable development is high due to global environmental challenges and the growing interest in sustainable development. The main employers are government agencies, environmental organizations, university partners - industrial enterprises, consulting and IT companies. Trends include a green economy, decarbonization, environmental auditing, and the introduction of eco-standards. Graduates' prospects are enhanced by interdisciplinary skills and digital technologies. The employment rate of university graduates in 2024 was 98 % In 2024, the Department of Ecology and Geography graduated 23 bachelor's and 8 master's students. Graduates were employed in the following organizations in their specialty: 1. East Kazakhstan region branch of Ecoservice-S LLP 2. Asian Environmental Audit Company LLP 3. Department of Natural Resources and Regulation of East Kazakhstan Region" 4.RSU "Department of Ecology for East Kazakhstan Region of the Committee for Environmental Regulation and Control of the Ministry of Ecology and Natural Resources of the Republic of Kazakhstan" 5. Department of Ecology and Geography of the National Academy of Sciences of the Higher School of Economics named after S.Amanzholov

	6. Russian State Institution "Zhayyk-Caspian Basin Inspectorate for Regulation, Protection and Use of Water Resources of the Committee for Regulation, Protection and Use of Water Resources of the Ministry of Water Resources and Irrigation of the Republic of Kazakhstan" 7. East Kazakhstan region branch of "Ecoservice-S" LLP
Activation of the work of the Resource Center for Professional and Advanced Training of professional personnel (external specialists, staff courses, teaching staff, etc.) in the field of environmental protection and sustainable development.	The Resource Center for Professional and Advanced Training conducted courses: - risk management courses for the management corps (13 participants); - advanced training courses for teaching staff on occupational safety and health (50 people); - a new course of the Silver University project was launched in February 2024. The training focused on the psychology of aging and emotional health. During the year, the project participants from among the teaching staff and staff took dance courses, foreign language studies, financial and IT literacy courses.
Study and refine existing curricula (syllabuses) on environmental protection and sustainable development in order to identify shortcomings. Inclusion of environmental protection and sustainable development sections in newly developed curricula (syllabuses).	In 2024, universal modules on sustainable development were included in the main educational programs. It is planned to include the discipline "Sustainable development of nature and society" in the General Education. In 2025, it is planned to develop and implement specialized English-language educational programs aimed at the global market.
Development of inter-faculty programs on environmental protection and sustainable development.	During the year, Higher education institutions have developed action programs on environmental protection and sustainable development. That's how the research was conducted: 1. Practical classes for students on environmental monitoring and meteorology at the Kazhydromet RSE (10/21/24) 2. Guest lectures by leading scientists from the Russian Federation, Turkey, Malaysia, Poland for students of the OP "Ecology", "Life Safety and Environmental Protection", "Hydroecology, management and transboundary water safety", "Geography", "Physics" 3. Scientific and methodological seminar "Environmental development and health conservation" within the framework of the grant financing project "Modeling of spatial and temporal dynamics of population health indicators in East Kazakhstan region using GIS technologies". The seminar was attended by students, undergraduates, doctoral students, teaching staff, as well as specialists from Kazhydromet of the Ministry of Ecology and Natural Resources of the Republic of Kazakhstan for East Kazakhstan and Abai regions (05.11.2024). 4. As part of the program, first-year students majoring in Geography, Geography-History, Hydroecology, Management and Transboundary Water Safety completed field training in Katon-Karagai district. The objectives of field training are to consolidate theoretical knowledge, develop field research skills, gain experience in natural conditions, and study the

	natural features of the Katon–Karagai district. 5. A large-scale campaign announced in the republic was held at all higher schools under the motto "Taza aula. The basin is warm. Taza ate!" ("Clean yard. A clean edge. A clean country!") Environmental events were held for five weeks, each dedicated to a specific topic. 6. Associate Professor of the Department of Biology Gulnaz Sadykanova presented the online course "Eukaryotic jasushanyn kurylymdyk-functionalдык uymdastyryly nemese jasushaga sayakhat" for the Coursera platform, which received positive expert opinions on technical requirements and content. Gulnaz Sadykanova became the first Kazakhstani scientist to post an author's work in the framework of the Coursera Kazakhstan tilinde project. 7. The Higher School of Humanities held events dedicated to charity, culture, and history. 8. The Higher School of Pedagogy held scientific republican, regional and city seminars on the problems of inclusion. 9. The Higher School of Business and Law conducted seminars and master classes on corruption, harassment, children's rights, etc.
Analysis of student theses for all higher schools, on the issue of including sections on environmental protection and Sustainable development.	Issues related to solving environmental and sustainable development issues have been included in student theses. For example, students of the Higher School of IT and Natural Sciences of the Higher School of Economics of the OP "Ecology" have created an intelligent online hydropost for continuous measurement of physical and chemical parameters of water. This research formed the basis for writing the final thesis. The graduate theses of the Higher School of Business and Law include the issues of the green economy, the impact of urbanization on natural ecosystems. The theses of the Higher School of Pedagogy and the Higher School of Humanities explore the social aspects of sustainable development, environmental ethics, etc.
Analysis and preparation of a plan for master's theses and PhD theses at all higher schools, on the issue of including sections on environmental protection and sustainable development.	Questions on solving the problems of the environment and sustainable development are included in the master's theses. 1. For example, Master's student in chemistry Zhandos Sagdollin is working on a project to produce natural eco—soap, which has a unique antibacterial property. The scientific program is the production of natural soap based on an annual herbaceous plant, for example, Alabot (Quinoa), using traditional Kazakh technology. The peculiarity of this soap production method is that it consists of environmentally friendly components without the use of any chemicals. 2. In 2024, undergraduates of the Department of Ecology and Geography successfully defended their dissertations on the following topics: Assessment of atmospheric air pollution in industrial zones of East Kazakhstan region, Study of the influence of pollutants in the atmosphere of Ust-Kamenogorsk on the incidence of upper respiratory tract of the population, Features of the national environmental impact assessment procedure (EIA), Design and regulatory support and emissions analysis Aytas-Energo LLP into the environment.
Organizational, financial, and	1. In February 2024, the Student Parliament held an introductory conversation with the Regulations on Protection

informational support for student initiatives to establish student organizations, protect the environment, and promote sustainable development.	against Harassment. The purpose of the organized event is to build teamwork and create a favorable psychological climate within the team. 2. During the year, the university held a job fair, educational seminars on the implementation of the Youth Practice program, which gives graduates the opportunity to gain initial work experience in various fields of activity, and trainings on the Contract of Generations program aimed at supporting young people and then replacing an active employee who has reached retirement age. The purpose of these events is to develop information literacy, prevent problems and consequences, and spread a policy of intolerance to harassment. 3. As part of the environmental program "Taza Kazakhstan", in October 2024, a meeting was organized at the S. Amanzholov University between Lyudmila Evzhenkova, an eco-activist, volunteer and eco-entrepreneur of the Ecoprivices project, and Aidos Adilbekov, head of the regional volunteer front office, with activists of the Zhasyl Tolkyn scientific ecological club. The event was organized to discuss respect for nature and the implementation of the Taza Kazakhstan program in the region. 4. Students of Amanzhol University took an active part in the annual, large-scale environmental campaign "World Cleanup Day". This event takes place in 150 countries around the world and is attended by more than 380 million people. The slogan of the campaign "Think globally, act locally" reflects the purpose of the event — to unite the population to organize comprehensive measures to clean up territories from garbage. In Ust-Kamenogorsk, the action took place on the coastal zone of the Ulba River, which made it possible to draw public attention to the problem of environmental pollution, especially of water bodies. 5. The University creates special educational platforms and laboratories to develop solutions in the field of sustainable construction, energy efficiency and ecology. Students and faculty are actively involved in research and projects aimed at improving the campus and interacting with the environment.
Analysis and compilation of a list of promising topics for scientific research in the field of environmental protection and sustainable development.	Scientists and faculty of the University carry out research in forecasting man-made and natural disasters, combating climate change. In this direction, scientists at the S. Amanzholov University are conducting research projects in the field of water security and water resources.: 1. "Assessment of the risk of destruction of hydraulic structures of water and energy facilities of the Verkhne-Irtysh cascade of the East Kazakhstan Hydroelectric Power station", implemented by Anatoly Chursin, a professor of the EKV, a hydroecologist. The project involves the development of technologies for early detection of risk situations and their consequences in geoecology. 2. Development and creation of a prototype damless microelectric power station based on a flow-through hydro

	turbine. The implementation period is 2023-2025. The head is Zhilkashinova A.M., Ph.D., the amount of financing is 81,719,111 tenge. The aim of the project is to develop scientific and technological solutions for design, research and testing, ensuring an increase in the efficiency of using a damless flow-through hydro turbine for power supply. 3. Development of a multicomposite biohydrogel to increase soil moisture and fertility. The implementation period is 2024-2026. The project manager is Akatan K., PhD, the amount of funding is 145,000,000 tenge. The aim of the project is to produce a biodegradable cellulose-based multicomposite material capable of absorbing and releasing water. 4. Since 2023, a project has been implemented under the leadership of the Chairman of the Board - Rector, Professor, PhD M.A. Tolegen on the topic: "Water security of the country, technologization and digitalization of water resources".
Creation of laboratories for environmental protection and sustainable development, with subsequent accreditation. Equipping laboratories with appropriate equipment for the analysis and monitoring of environmental objects. Collaboration of laboratories with city structures for environmental protection and sustainable development.	1. In 2024, physics, biology, and chemistry classrooms equipped with advanced equipment for practical student learning opened their doors at Amanzholov University. 2. Three subject rooms within the framework of the project "Modernization of Secondary Education" were equipped by the Committee for Higher and Postgraduate Education of the Ministry of Science and Higher Education of the Republic of Kazakhstan with funding from the World Bank. 3. The Shygys-BASTAU Technopark has been opened, aimed at developing Startup projects and an innovative entrepreneurial system, as well as an IT Hub that unites IT specialists to develop digitalization in the region. The new space includes a media room, an "Idea Room", a "Lounge zone" and a dialogue area. 4. The multimedia interactive video recording studio "EdSmart Premium" has been created. The digital laboratory is equipped with video and audio equipment, which enables teachers to prepare educational content and courses for the Coursera platform using modern techniques and tools. 5. Coworking is organized for students with a Smart library, as well as areas for individual, collective and creative work. Students can appreciate the space with a designer interior and ergonomic transformer furniture. 6. The University actively cooperates with local authorities and environmental organizations to create green corridors that connect the campus with neighboring natural areas. This improves biological diversity, as well as contributes to the cleanliness of air and water bodies.
Development of a program for the development of research in the field of environmental protection and sustainable development.	1. A Roadmap for sustainable development has been developed (see the official website of the University, the "fundamental documents" have been developed. 2. A section has been created on the university's website "SDGs", which highlights all the university's activities to implement the SDGs, as well as regulatory documents.
Analysis and compilation of a list of	In 2024, Amanzholov University became a participant in an international research project supported by the Leibniz

potential international partners for joint scientific projects in the field of environmental protection and sustainable development.	Foundation for 2024-2029 and implemented by the Institute of History and Culture of Eastern Europe under the leadership of a leading researcher, Professor Julia Herzberg. The theme of the project is "Melting Mountains: Society, Environment and the vertical climatic Frontier of the Greater Altai (1950-2020)". The aim is to study climate change in Altai from a socio-humanitarian point of view. As part of the implementation of the Sustainable Development Goals, joint events are planned between the University of Economics and the Leipzig Institute of History and Culture of Eastern Europe. In particular, conducting lectures and seminars for students of the ECU, EP Biology, History, Religious Studies, International Relations, organizing a summer school in the East Kazakhstan region, conducting field research by scientists, writing joint scientific papers. In addition, ECU scientists, together with their German colleagues, will conduct research on sustainable tourism in the Altai Mountains, as well as the impact of climate change on agriculture.
Development of an Action Plan (articles, books, scientific events, etc.) dedicated to environmental protection and sustainable development.	In 2024, according to the Action Plan, more than 100 scientific, educational and educational events were held, among which are: 1. training of teachers of pedagogical universities on scaling innovative educational programs developed within the framework of the project of the World Bank and the Government of the Republic of Kazakhstan "Strengthening the pedagogical potential of the Republic of Kazakhstan", 2. trainings on topical issues of introducing new artificial intelligence technologies into the educational process, the development of inclusive education 3. More than 50 Olympiads in chemistry, biology, ecology and geography were held at Amanzhol University. The winners of the Olympiads were rewarded by the university administration with various awards and diplomas, and memorable prizes. 4. In March 2024, the Department of Ecology and Geography of the Higher School of IT and Natural Sciences of the All-Russian University of Higher Education conducted an ecological brain-ring "Earth is our common Home" within the framework of the Menin Tandaiym— TAZA KALA city program. 5. During the year, meetings were organized and held with foreign partners in order to develop international cooperation in the implementation of the SDGs. Ambassador Extraordinary and Plenipotentiary of Hungary to Kazakhstan Rona Otto Ivan, Consul of the Hungarian Embassy in Kazakhstan Denge Aniko, Director of the Italian Cultural Institute in Almaty, Cultural Attache of the Italian Embassy in Kazakhstan Edoardo Crisafulli, scientists from India, Malaysia, Poland, Hungary, Russia, Germany visited Amanzhol University. Projects in the field of development of new IT technologies, materials science, nanotechnology, technology for the production of organic agricultural products, etc. were discussed.

According to the Greenmetric international rating, the Education section (18%) includes 11 indicators evaluating the activities of universities in the creation and dissemination of environmental knowledge (training courses on environmental issues, research funds aimed at studying environmental issues, the number of published scientific papers on environmental issues, etc.). Education for sustainable development is a priority area for sustainable development. The University is working towards the creation of educational programs and modules tailored to the needs and relevance. The indicators in the direction of "Education and research" are presented in table 2.

Table 2. "Education and research". The place of the S. Amanzholov EKV among the universities of the world in this indicator is 999, among Kazakhstani universities – 17

Indicator	The year 2024
The number of courses/subjects offered related to sustainability	28
The ratio of courses in the field of sustainable development to the total number of courses/subjects	> 10-20%
Number of published publications in the field of sustainable development	84-300
Number of student organizations related to sustainability	6-10
Number of startups related to sustainable development	1-5

BLOCK 2.

Infrastructure and environment management

In 2024, Amanzholov University became a member of the prestigious international Greenmetric rating and took 1006th place in the world and 13th place in the rating of "ecological" Kazakhstani universities.

According to the Greenmetric international rating, the environment and infrastructure of the university (weighting factor - 15%) includes 11 indicators. These include both specific "environmental" indicators that characterize the general attitude of the campus to the natural environment (for example, the percentage of the campus area covered by forest vegetation, and indicators widely used in major academic rankings (the number of students, the number of academic and administrative staff).

One of the aspects of the implementation of this indicator is the increase in the campus area covered with vegetation, i.e. the creation of new squares, including lawns, gardens, green roofs, indoor planting, vertical gardens, etc. The open space of the campus, unoccupied by buildings and forests, includes the territory near the main building, other academic buildings, and the practice base.

In 2024, the open space of the campus was 91%. The total area of the campus is 464,100 m².

The data on the main indicators of the University in the field of "Environment and infrastructure" are presented in Table 1.

Table 1. The main indicators in the direction of "Environment and infrastructure. The place of the S. Amanzholov ECU among the universities of the world in this indicator is 507, among Kazakhstani universities – 7.

Indicator	The year 2024
Outdoor area ratio пространства к общей	> 90-95%
Parking area, m2	2000 sq.m.
The campus area is covered with forest	> 35%
Campus area covered by	> 40%
The total area of the campus, capable of water absorption, except for the forest	> 30%
The percentage of work on the operation and maintenance of the building in one year	100%
Campus facilities for people with disabilities, special needs, and/or maternity care	Facilities are available in all buildings and are fully functional.

Transport policy (18%). It includes 8 indicators (the number of vehicles owned by the university, the number of cars entering the university grounds daily, the number of bicycles on the university grounds daily, the transport policy aimed at limiting or reducing parking space on campus, etc.). Systematic work is underway to limit parking space on campus. In order to integrate the university with the ecosystem of the city, the campus is developing infrastructure for cyclists and pedestrians. Convenient bike paths and bicycle parking have been created.

The transport policy indicators are presented in table 2.

Table 2. The main indicators in the direction of "Transport" are the place of the S. Amanzholov ECU among the universities of the world in this indicator – 1201, among Kazakhstani universities – 19

Indicator	The year 2024
The number of cars entering the university daily	56
The ratio of zero-emission vehicles to the total population кампуса	0,002

The ratio of the total number of vehicles (cars and motorcycles) to the total population of the campus	[5] <0,045
Pedestrian policy on campus	[5] Pedestrian paths are available, designed for safety and convenience.

BLOCK 3. GREEN ENERGY

Energy and climate change

Efficient use of energy and impact on climate change (21%). It includes 10 indicators, such as the use of energy-efficient appliances, renewable energy sources, total electricity consumption per year (kWh), etc. As of October 2024, the University is implementing the following initiatives in the field of Energy and Climate Change:

The university successfully implements energy efficiency and resource conservation programs, as metering devices are installed in all buildings, information from which is sent monthly to the Economic Department and Accounting Department, which allows analyzing the water/energy consumption of each individual building on the university campus. The university uses the accumulation of electric energy, due to diesel power plants. The campus is illuminated by LED floodlights powered by solar panels.

Planned and preventive maintenance work is being carried out at Amanzholov University to improve energy efficiency and building safety. All academic buildings of the university have been updated. Barriers have been installed to enter the campus to reduce the number of vehicles on campus.

For the rational use of water resources on campus, it is planned to introduce a rainwater collection system in 2025 with further use for irrigation of the adjacent campus. Water supply systems are also being actively upgraded to prevent losses and increase efficiency. The data on the main indicators of the University in the field of "Energy and climate change" are presented in Table 1.

Table 1. Main indicators in the direction of "Energy and climate change. According to this indicator, EKV ranks 1033rd in the Greenmetric rating, and 15th among Kazakhstani universities.

Indicator	The year 2024
The use of energy-efficient devices	> 75%

Total area of smart buildings on the main campus (m2)	70611,8
Implementation of the Smart Buildings program~	>25-50%
Total carbon footprint (CO2 emissions over the last 12 months, metric tons)	1,340 metric tons
Total carbon emissions divided by the total campus population (metric ton per person)	<0.10 -0.42 metric tons
Electricity consumption per year (kWh)	1575 кВт*ч
Total electricity consumption divided by the total campus population (kWh per person)	< 279

Wastes

The Waste Recycling group (18%) includes 6 indicators evaluating the university's waste recycling capabilities (university waste disposal program, toxic waste disposal, policy to reduce the use of paper and plastic on campus, etc.). The University's waste is transferred to Oskemen Tazalyk LLP for disposal. The S. Amanzholov ECU is taking measures to reduce the use of paper, for example, the use of double-sided printing, the introduction of electronic document management. Students and university staff regularly participate in clean-up activities to clean up the campus and the city from garbage, which is then disposed of accordingly.

The data on the main indicators of the University in the "Waste" area are presented in Table 2.

Table 2. The main indicators in the direction of "Waste. According to this indicator, ECU ranks 936th in the Greenmetric rating, and 13th among Kazakhstani universities.

Indicator	The year 2024
University Waste Recycling Program	3R program 1-50% implemented
A program to reduce the use of paper and plastic on campus	3 waste reduction programs are being implemented бумаги и
Organic waste management	1-35%
Inorganic waste management	1-35%
Toxic waste management	1-35%

Water

Rational use of water resources (10%). There are 5 indicators on water conservation, the use of recycled water, etc. The University's campus is undergoing a phased modernization of water supply and sanitation systems, according to the capital repair program, using modern water conservation tools. The total volume of water consumption in 2024 was 48,886 m³. The data on the main indicators of the University in the direction of "Water" are presented in Table 3.

Table 3. The main indicators in the direction of "Water". According to this indicator, ECU ranks 933rd in the world and 12th among Kazakhstani universities in the Greenmetric rating.

Indicator	The year 2024
Implementation of the water conservation program	At the preparation stage
Use of water-saving devices	60-80% of water-saving appliances are installed
Recycled water consumption	50-75%

Table 4 "General indicators for block 3 "Green energy"

Indicator	The year 2024
Implementation of a garbage sorting system	Availability of eco-containers for paper, cardboard, fdomats for plastic and metal
Number of installed ATMs	1 automatic machine for receiving plastic and tin bottles
Landscaping of the university grounds	Planting of trees, shrubs and perennials in spring and autumn 2024
Tree planting within the framework of environmental акций	The university's participation in gardening campaigns. More than 500 seedlings have been planted
Environmental actions ("Taza Kazakhstan")	Sanitary cleaning of the university grounds
Publication of the educational and methodical manual "Taza Kazakhstan"	Development and release of an ecoculture manual in 2025
Publication of sustainability reports	Regular informing of students and teachers through the official website of the university

Conclusion

The University's efforts to create a sustainable "green" campus and transition to an energy-intensive economy cover many aspects, from energy efficiency and water conservation to waste management and environmental construction. Through an integrated approach that includes the introduction of innovative technologies, educational initiatives and active cooperation with the city authorities, the university makes a significant contribution to sustainable development and improvement of the quality of life on campus and in the surrounding city.

All these measures contribute to the creation of an energy efficient, sustainable and environmentally friendly university campus. Strategic planning, the use of innovative technologies, and close cooperation with local authorities and the scientific community make it possible to integrate the university into the broader ecosystem of the city and region, as well as effectively implement environmental improvement goals for future generations.

