NP JSC **«South Kazakhstan University named after M. Auezov»**

Climate Change Action Plan

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Introduction

Climate change is becoming one of the key factors influencing the sustainable development of universities in the CIS countries. Modern educational institutions are no longer limited to the role of a source of knowledge — they are becoming active participants in environmental transformations, forming expert approaches to reducing emissions, introducing resource-saving practices and building systemic climate strategies. South Kazakhstan University named after M. Auezov, as one of the leading regional universities, is able to integrate the climate agenda into campus management, scientific activities and social initiatives. This document offers a comprehensive action plan reflecting the best examples of universities in Kazakhstan, Kyrgyzstan, Uzbekistan, Russia and other CIS countries, adapted to the context of the SKU.

Operational activities

Operational activities include all processes related to the functioning of the university's infrastructure. The main sources of direct climate impact are in this direction: energy consumption, heating, building condition, transport, waste and resource use. The University reduces emissions by improving energy efficiency, modernizing equipment, optimizing heating systems, and implementing sustainable consumption principles. The SMART approach is used here to ensure that each initiative has precise parameters. The goals are formulated in such a way that they are specific — for example, they set a certain amount of emission reduction, measurable — expressed in percentages, kilowatt-hours or tons of CO_2 equivalent, realistic - taking into account the budget and technical capabilities of the university, relevant — related to the overall climate strategy of the university, and time—limited — with a clear deadline. An example is the task of reducing the electricity consumption of a certain campus by a set percentage by a specific year by switching to energy-efficient solutions, improving thermal insulation, and implementing automated energy management systems.

Priority areas of decarbonization

The development of a climate strategy begins with the identification of key impact areas. The most significant sources of emissions for CIS universities are energy consumption, transportation, procurement, waste management, water use, and the use of laboratory equipment. An effective action plan involves a phased reduction of emissions in these areas through the modernization of infrastructure, the introduction of energy-saving technologies and optimization of internal processes. Universities in Kazakhstan and Uzbekistan are already demonstrating a reduction

in energy consumption of up to 10-18% after switching to modern resource management systems, which confirms the applicability of the approach for SKU.

Energy modernization of the campus

One of the key tools for reducing emissions is the transition to energy-efficient solutions. For CIS universities, building insulation programs, the installation of intelligent lighting systems, the introduction of motion sensors in corridors and classrooms, as well as the phased replacement of outdated heating systems are proving to be the most effective. Solar collectors, solar panels for individual faculties, laboratories or dormitories provide a significant impact on reducing emissions. Many universities in the region are achieving savings of up to 25-30% of electricity at individual facilities after implementing similar measures. SKU can implement pilot energy projects at facilities with the highest consumption, gradually expanding the scale.

Education

The educational direction is responsible for the formation of climate literacy among students and university staff. It includes updating curricula, expanding the topics of sustainable development, training teachers and developing a climate culture within the academic environment. The University strives to ensure that students understand the relevance of climate challenges and are ready to apply sustainable solutions in their future professional activities. The application of the SMART approach in the educational field ensures the measurability and verifiability of changes. The formulations are set so that it is possible to estimate the number of training programs to which climate topics have been added, the number of trained teachers, the coverage of students, or the regularity of information campaigns. The time frame is also determined in advance, which helps to plan course updates and resource allocation.

For example, the task may be to introduce a mandatory module on sustainable development for all first-year students by a certain academic year and to provide teacher training in the field of climate education within a given period.

Responsible transportation and campus mobility

Transport activities traditionally form a significant part of category 3 emissions. CIS universities show the success of programs to promote eco-friendly mobility:

the creation of bike parks, the development of routes for students, support for public transport, and restrictions on the entry of personal vehicles into the central areas of the campus. It is also important for South Kazakhstan University named after M. Auezov to develop internal carsharing for employees, switch to hybrid or electric company cars and promote the format of "eco-friendly routes" for students living in dormitories.

Waste management and pollution reduction

The transition to a sustainable waste management system is an important part of the climate plan. The best universities in the CIS are introducing sorting and separate collection of plastic, paper, glass and food waste, as well as developing recycling infrastructure, including mini-composters in green lab campaigns. Single—use plastic reduction programs are an effective mechanism for reducing indirect emissions. South Kazakhstan University named after M. Auezov may launch a Zero Waste campus program, which includes the creation of sorting points, the abandonment of plastic cups and the encouragement of reuse of materials.

Climate monitoring system

The creation of a system for continuous monitoring of CO_2-equivalent emissions makes it possible to track the results, adjust the strategy and ensure transparency of climate activities. Universities in Kazakhstan and Russia are implementing digital panels aggregating data on energy consumption of buildings, water use and waste. SKU can develop its own "University Climate Impact Map", which will contain all key indicators, including emissions of categories 1, 2 and 3, energy consumption dynamics and decarbonization data.

Climate research initiatives

South Kazakhstan University named after M. Auezov has significant scientific potential for the development of applied solutions in the field of sustainable development. The University can develop climate laboratories, research groups on low-carbon materials, adaptation policy, water management and the creation of energy-efficient technologies. In the CIS countries, such areas are actively supported by grant programs, mini-project competitions, and student startups. The inclusion of climate issues in curricula is an additional factor in the formation of sustainable development competencies.

Expanding partnerships and international cooperation

Despite the lack of emphasis on American universities, CIS universities have a rich network of cooperation within the region. Kazakh, Kyrgyz, Uzbek and Russian universities are developing joint programs in the fields of ecology, agriculture and climate adaptation. South Kazakhstan University named after M. Auezov can expand its participation in regional climate consortia, initiate joint research, connect to networks of "green campuses" and share methods to reduce emissions.

Educational and social programs for students

The creation of a culture of climate responsibility begins with the formation of a conscious attitude towards sustainable development. CIS universities successfully apply environmental education approaches: holding annual "climate weeks", organizing student volunteer groups, competitions on energy efficiency in dormitories, creating courses and electives on climate adaptation. It is important for South Kazakhstan University named after M. Auezov to include the climate agenda in student life, expanding opportunities for participation in practical environmental projects.

Financial mechanisms for supporting climate projects

Universities in the region use hybrid financing models: government grants, corporate sponsorship programs, research funds, social projects, and energy audits with a return on investment by saving resources. For South Kazakhstan University named after M. Auezov, it is possible to introduce a model of "energy service contracts" for the modernization of lighting and heating systems, which is widely used at universities in Russia and Kazakhstan.

Scientific research

The university's research activities play a key role in developing scientific solutions that help reduce climate risks. This area covers fundamental and applied research, publications, laboratory work, the creation of interdisciplinary groups, participation in grants and the implementation of scientific results in practice. The

University promotes the development of research related to energy, climate models, green technologies and socio-ecological aspects of sustainable development.

The SMART approach allows you to create measurable and well-founded research tasks. They are described quantitatively through an increase in the number of scientific projects, an increase in publication activity, the creation of new research structures or the expansion of the volume of implemented practical solutions. The time limit stimulates the planned development of scientific activities and allows you to track progress annually. An example is to increase the number of climate studies by a certain percentage over several years and achieve a set level of publications in international scientific databases by a specific deadline.

Conclusion

The Climate Change Action Plan for South Kazakhstan University named after M. Auezov is a strategic document aimed at modernizing the campus, improving energy efficiency, and developing research initiatives. The University can become a regional leader in the field of sustainable development, relying on the experience of CIS universities, its own scientific potential and the active participation of students. Consistency, consistency and openness in the implementation of the climate strategy will ensure the achievement of long-term goals to reduce the carbon footprint and create an environmentally responsible academic environment.