2025 / ANNUAL SUSTAINABILITY REPORT

SDG 13 | Climate action

Khazar University · Baku, Azerbaijan

REPORTING PERIOD JANUARY–DECEMBER 2025

Institutional Approach

Khazar University addresses climate change through environmental policies, research, teaching and community engagement. In 2025, the University supported climate education, student innovation and international exchanges on adaptation and clean energy, while maintaining its long-term emissions-reduction commitments.

Jan 2025	240 min	24
EcoSteps carbon-footprint calculator launched	urban climate course taught in 2024/25	presentations at One Health 2025

13.1 Research on climate action

In 2025, Khazar University-affiliated researchers contributed to scientific publications relevant to **SDG 13 (Climate Action)**. The supplied Scopus dataset contains **57 records for 2025**, including 55 research articles, reviews and book chapters, one editorial and one correction. The research covered climate policy, carbon emissions, renewable energy, green finance, and climate change adaptation.

Climate policy and carbon emission reduction

Kartal et al. (2025), in *How Can SDG-13 Be Achieved by Energy, Environment, and Economy-Related Policies?*, examined the effects of energy transition, environmental regulations, and economic policies on environmental sustainability in five emerging economies. The study highlighted the need for more effective, country-specific policies to address climate-related challenges.

Pata et al. (2025) investigated the relationship between green bonds and carbon emissions in the world's five largest emitting countries. Their findings provided insights into how sustainable financial instruments relate to emissions across different economic sectors.

Renewable energy transition and green growth

Nuriyev et al. (2025), in *Application of the Z-Information-Based Scenarios for Energy Transition Policy Development*, examined renewable energy transition strategies in Azerbaijan. The researchers developed a scenario-based approach to support energy policy decisions under uncertainty, considering the country's economic dependence on oil and gas.

Guliyev (2025) explored the relationship between renewable energy consumption and economic growth in G7 countries. The study found that the economic effects of renewable energy differed considerably between countries, highlighting the importance of national conditions and targeted policy measures.

Borowski (2025), in *Economic and Technological Challenges in Zero-Emission Strategies for Energy Companies*, reviewed the economic and technological barriers facing energy companies in transitioning towards low-emission operations. The study discussed investment requirements, renewable energy technologies, and the challenges of achieving carbon neutrality.

Climate change adaptation and agricultural resilience

Tasneem et al. (2025) investigated the impact of climate change on rice production using machine learning models. The researchers analysed historical climate and agricultural data to predict changes in crop yields, identifying temperature as a major factor influencing production. The study contributes knowledge relevant to agricultural adaptation and food security.

Research participation and knowledge exchange

Alongside scientific publications, Khazar University supported climate education, research collaboration, and environmental awareness during 2025.

In January 2025, the student-led EcoSteps: Our Carbon Footprints project launched a digital platform helping individuals calculate their carbon footprints and understand the environmental impacts of daily activities.

On 10 March 2025, the University organised the Harnessing AI to Advance Sustainability and Green Skills seminar, exploring the use of artificial intelligence in environmental protection and clean energy.

On 11–12 March 2025, researchers participated in the SORG4NOBAL international project meeting, which addressed climate-resilient agriculture, nature-based solutions, and environmental sustainability.

Climate education was further supported through a 240-minute instructional unit on climate change and greenhouse gas reduction in urban environments, developed by Dr. Rovshan Abbasov and taught during the 2024–2025 academic year.

Together, these scientific publications and institutional activities demonstrate Khazar University's contribution to climate-related research, knowledge exchange, and environmental education. Through interdisciplinary research and international collaboration, the University supports the development of knowledge relevant to climate change mitigation, adaptation, and sustainable energy transition.

Selected Research Publications (2025)

1. **Kartal, M. T., Mukhtarov, S., Depren, Ö., Ayhan, F., & Ulussever, T. (2025).** How can SDG-13 be achieved by energy, environment, and economy-related policies? Evidence from five leading emerging countries. *Sustainable Development, 33*(4), 5110–5133. DOI
2. **Pata, U. K., Kartal, M. T., Ahmed, Z., & Sinha, A. (2025).** Relationship between green bonds and carbon neutrality: Evidence from top five emitting countries' sectoral CO_2 emissions. *Financial Innovation, 11*, 10. DOI
3. **Nuriyev, M., Nuriyev, A., & Mammadov, J. (2025).** Application of the Z-information-based scenarios for energy transition policy development. *Energies, 18*(6), 1437. DOI
4. **Guliyev, H. (2025).** Heterogeneous panel data model with sharp and smooth changes: Testing green growth hypothesis in G7 countries. *Innovation and Green Development, 4*(3), 100245. DOI
5. **Borowski, P. F. (2025).** Economic and technological challenges in zero-emission strategies for energy companies. *Energies, 18*(4), 898. DOI
6. **Tasneem, K. T., Shahzad, M. U., Rashid, J., Othman, K. M., Zafar, T., & Faheem, M. (2025).** Predicting rice yield and impact of climate change on rice production using machine learning models. *Theoretical and Applied Climatology, 156*, 665. DOI

Research exchange also reached wider audiences through the March SORG4NOBAL final workshop on climate-resilient agriculture and nature-based solutions, and November's Fourth International One Health Conference on climate, health and food security.

13.2 Low-carbon energy use

Khazar University's published Greenhouse Gas Emissions Report 2024 provides an earlier reference point: 1,185.07 tonnes of CO2-equivalent emissions across Scope 1, Scope 2 and a partial Scope 3 inventory. The 2024 report also records around 480 kWh of solar generation. These are 2024 reporting figures, not 2025 emissions or energy results.

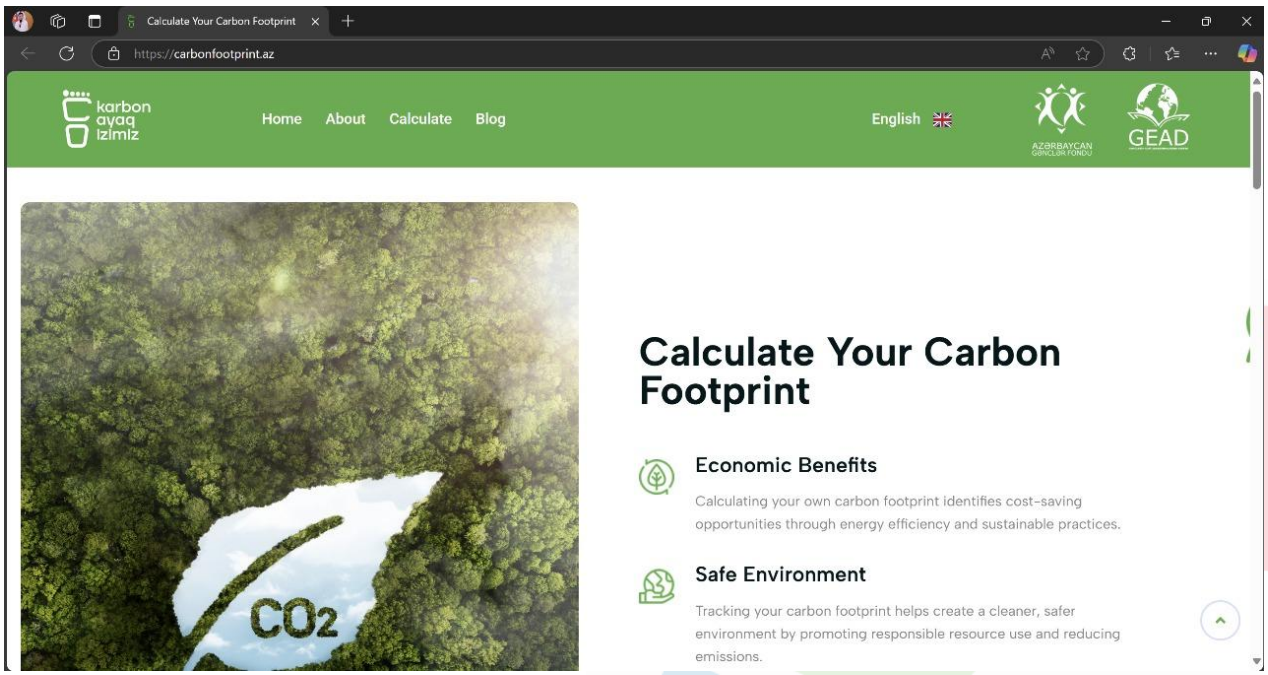
The University's Climate Action Plan and Environmental Policy identify cleaner energy, efficient buildings and lower-emission transport as long-term priorities. Their publication reflects institutional planning; a measured 2025 low-carbon energy share would require a complete energy-use record across university operations.

Knowledge exchange included the Energy Systems Research Center seminar series in April-May and a piezoelectric energy-harvesting seminar in November, examining renewable generation, smart grids and emerging technologies.



13.3 Environmental education measures

The student-led EcoSteps: Our Carbon Footprints project launched a public-facing online footprint calculator in January 2025. In March, the University organised Harnessing AI to Advance Sustainability and Green Skills for Khazar and Dunya School staff, highlighting practical approaches to cleaner energy and environmental problem-solving.



Dr. Rovshan Abbasov also developed a 240-minute urban climate-change curriculum taught during the 2024-2025 academic year, covering risks, mitigation and adaptation. The University's three-phase Sustainable City Project brought students into planning exercises on greener urban spaces and campus design.

International discussions expanded through the SORG4NOBAL research partnership, the One Health conference and an October water-diplomacy lecture. These activities advanced dialogue and skills; they are not presented as implemented municipal climate plans or measured emissions reductions.

13.4 Commitment to carbon neutral university

Khazar University's public Climate Action Plan (2015-2050) states an ambition to reach net-zero greenhouse gas emissions by 2050. The accompanying 2024 emissions inventory outlines a Scope 1, Scope 2 and partial Scope 3 accounting

approach. These sources describe the University's direction and baseline reporting, not achievement of carbon neutrality in 2025.

Selected Activities in 2025

2025	ACTIVITY
Jan	EcoSteps project and online carbon-footprint calculator launched
8-9 Feb	AirVive climate-tech project wins second place at hackathon
10 Mar	AI, sustainability and green skills seminar at Dunya School
11-12 Mar	SORG4NOBAL climate-resilient agriculture research exchange
29 Apr-1 May	Renewable-energy and smart-grid academic seminar series
May-Nov	Three-phase Sustainable City Project practical planning workshops
21 Oct	Water-diplomacy and climate challenges lecture
7 Nov	Piezoelectric energy technologies academic seminar
28-29 Nov	Fourth International One Health Conference

2025 Overview

In 2025, Khazar University connected climate science with public learning through the EcoSteps digital platform, climate-related coursework, energy seminars, applied adaptation partnerships, student innovation and international conferences. Its 2050 emissions goal and published 2024 inventory provide the longer-term institutional context for this work.