



7th Aral Sea Summer School

August 15–24, 2025

Introduction

The Aral Sea, once one of the largest water ecosystems in Central Asia, has seen its volume shrink nearly tenfold in recent decades, resulting in one of the most severe environmental disasters of modern times. This crisis has had a significant impact not only on the environment but also on the socio-economic situation in the region.

The disruption of the natural water balance, due to regulation of the transboundary Syr Darya and Amu Darya rivers in the mid-20th century, led to desertification, land degradation, increased frequency of dust storms, and declining water quality. The shrinking of the water body resulted in the collapse of the fishing industry, reduced agricultural productivity, and worsened living conditions for the local population. Today, about 2 million people in the region are suffering from the consequences of the water crisis, including deteriorating health and forced migration.

Despite these large-scale challenges, Kazakhstan and Uzbekistan are actively working to restore the Aral Sea ecosystem through projects focused on water resource management, sustainable agriculture, and land reclamation. Since October 2024, 1 billion cubic meters of water have been directed into the Northern Aral Sea — 100 million more than planned. By the end of 2025, the water volume in the Northern Aral is expected to reach 23.4 billion cubic meters, and the surface area over 3,100 square kilometers. These measures are helping reduce water salinity and restore the population of 22 fish species, which has led to an increase in fish harvests to 8,000 tons per year.

Since 2019, the Kazakh-German University (DKU), together with international and local partners (including funding from the German Federal Foreign Office, IHE Delft, the Executive Committee of the International Fund for Saving the Aral Sea in Kazakhstan, Barsakelmes State Nature Reserve, and GIZ), has been organizing annual summer schools at the Aral Sea. These schools engage young professionals, scientists, and civil society in studying and addressing regional issues.

In 2025, the 7th Aral Summer School will focus on modern approaches to ecosystem restoration, climate change adaptation, and sustainable water and land management. It will serve as a platform for cultivating a new generation of environmental, climate, and water leaders in Central Asia. Increasing awareness, developing practical skills, and engaging in real-world projects will empower young professionals to contribute to sustainable regional development and create effective solutions for preserving natural and water resources.

The Summer School is organized with support from GIZ under the Green Central Asia initiative and IHE Delft within the ASB&LCB SPACE (Aral Sea Basin and Lake Chad Basin a space for interdisciplinary knowledge generation and sharing for sustainable governance of river basins amidst climate crisis) project.

Objective

To strengthen the capacity of young professionals in the field of water resources and sustainable development in Central Asia.

Key Goals

- Expand the knowledge of future leaders about climate change and its impacts on water, food, and socio-economic security in the Central Asian region.
- Develop participants' practical skills through theoretical and field-based training using Global Water Partnership (GWP) tools on integrated water resources management.
- Raise youth awareness on water issues through engagement in research and development of solutions for sustainable water use.
- Strengthen and develop a platform for knowledge exchange among youth initiatives, experts, civil society, and international projects to formulate concrete actions for water conservation.
- Promote rational water resource management in the Aral Sea basin for ecosystem restoration and sustainable water use.
- Advance scientific knowledge and public awareness about the challenges and opportunities of restoring the Aral Sea region through media outreach and regional cooperation.

Key Themes of the 7th Aral Summer School:

1. Water Security and Agricultural Adaptation to Climate Change in the Aral Region

This topic addresses water scarcity driven by overuse and climate change, and explores adaptive agriculture for increasing the resilience of the agro-sector. It includes water-use scenarios through 2050, strategies for reducing water losses using water-saving technologies (such as drip irrigation and agroforestry), and cultivating drought-tolerant crops.

Participants will use freely available remote sensing data (e.g., Sentinel-2, Landsat 8) and indices (e.g., NDVI, NDWI) to monitor water resources. Data analysis will be presented in a review format, with minimal programming and a focus on interpretation and real-world applications in water management. The course will also cover examples of transboundary cooperation and ecosystem restoration in the Small Aral Sea.

2. Ecotourism and Restoration of Natural Heritage in the Aral Region

This topic explores the potential of ecotourism as an economic driver and tool for environmental conservation. It includes restoration initiatives (e.g., saxaul planting, dust storm prevention) and tourism's impact on local communities.

Participants will analyze opportunities for developing ecotourism routes, strengthening local initiatives, and leveraging international efforts such as UNESCO's Global Geopark initiative.

The summer school will include both theoretical learning and field research aimed at developing short thematic studies in the Aral region.

Methodology

The Summer School will provide a platform for knowledge exchange among experts, young researchers, and representatives of local communities, contributing to the development of professional competencies and expanding networks in the fields of water resources, ecology, and sustainable agriculture. The program will combine theoretical training, hands-on activities, and field research, enabling participants to gain both foundational knowledge and practical experience in addressing the pressing challenges of the Aral region.

The educational process will include interactive lectures and discussions with leading scientists and experts in water resources, agroecology, digital technologies, and climate change. Lectures will be complemented by group discussions and practical sessions, during which participants will develop their own solutions for improving water resource management, restoring ecosystems, and adapting agriculture to changing climate conditions.

A strong emphasis will be placed on the practical application of knowledge. The Summer School program will include:

- 1–2 days of theoretical training (lectures, master classes, and workshops),
- 5–6 days of field research (visits to environmental and water management infrastructure sites, meetings with local residents and experts, work with geographic information systems and satellite data), and
- 1 final day for wrap-up activities (presentation of participant projects, exchange of ideas, and discussion of results).

Field research will provide participants with insights into modern methods for monitoring the state of water resources, land degradation, and restoration initiatives, including the use of drones, satellite data, and GIS technologies. The program includes visits to restored areas of the Northern Aral Sea, irrigation canal systems, ecological rehabilitation zones, as well as meetings with representatives of local farms implementing water-saving technologies.

Participants of the Summer School will work in two interdisciplinary groups based on the following thematic areas:

1. Water Security and Agricultural Adaptation to Climate Change in the Aral Region;
2. Ecotourism and Restoration of the Natural Heritage of the Aral Region.

This format will ensure the integration of knowledge from various scientific and practical fields, as well as effective interaction among participants.

The outcome of the Summer School will be analytical reports and project proposals developed by the participants according to their thematic focus. These materials can be used for further research, publications, and practical applications.

The event will bring together representatives from scientific institutions, international organizations, civil society groups, and government bodies, offering participants a broad range of perspectives and expert knowledge to support comprehensive understanding and the development of sustainable solutions.

Planned site visits include:

UNDP's "Green Belt" project near Aralkum,
"Kamystybas" public association and its work on advanced fishing technologies,
"Aral Tenizi" public foundation's efforts to support fisheries at Lake Tushchi,
Visits to Kok-Aral dam and Ak-Lak hydraulic structures, key elements in restoring the Northern Aral Sea,
Barsakelmes Nature Reserve,
The northern shore of Butakov Bay and the village of Zhalanash — potential sites for ecotourism and "dark tourism" and their benefits for local communities.
Additional visits may include pilot sites supported by:

the GEF Small Grants Programme (SGP),
USAID's WAVE project (Water Resources and Vulnerable Environment),
GIZ's "Ecologically Oriented Regional Development in the Aral Sea Region" supports
micro-, small-, and medium-sized enterprises in Kazakhstan and Uzbekistan.

Participants

The Summer School is intended for master's students, PhD candidates, and young professionals aged 18 to 40 interested in integrated water and land resources management and its application in policy development. Priority is given to participants from Central Asian countries with experience in water-related or adjacent fields.

Women are especially encouraged to apply to promote gender balance.

The main working languages of the school are Russian and English.



Implemented by:



Auswärtiges Amt

**WATER AND
DEVELOPMENT**
PARTNERSHIP
PROGRAMME



Program of the 7th Aral Sea Summer School, 2025

Date	Location	Time	Activity / Lecture / Field Visit	Topic / Logistical Notes	Partners
Day 0 (14.08)	Almaty		Arrival of participants	All logistics for participants will be arranged.	
Day 1 (15.08)	Almaty, DKU 173 Nazarbayev Avenue	Official Opening			DKU
		08:30	Participant registration / Welcome coffee	<p>The first day will start with welcome remarks from DKU leadership, IFAS representatives, and partners. The structure of the Summer School and the trainer team will be introduced. Presentations and lectures will cover the following key themes:</p> <ul style="list-style-type: none"> • Climate change and the tragedy of the Aral Sea • Integrated Water Resources Management (IWRM) and international experience • Socio-economic aspects of development in the Aral region and environmental stabilization measures • Development of scientific publications and the role of DKU journals • Use of visual methods and photo projects in regional studies • Integrated natural resource management and ecosystem restoration • Prospects for the development of UNESCO Global Geoparks in the region • The day will conclude with a wrap-up discussion. 	
		09:00	Official Opening		
		09:30	Welcome speeches: <ul style="list-style-type: none"> • Prof. Wolrad Rommel, President of DKU • Asel Azhibayeva, PhD in Economics, Rector of DKU • Askhat Zhilkaidarov, Vice-President of DKU (offline) • Ulan Musaliev, Deputy Head of IFAS Executive Committee (video message) • Marat Narbaev, Deputy Director of IFAS EC in Kazakhstan • Jennifer Sehring, IHE Delft (online) 		
		09:30-09:35	<i>Introduction to the Summer School and Trainers</i>		
			Presentation 1: Dinara Seydazimova , DKU – <i>ASB&LCB Space Project</i> (offline)		
		09:35-09:45	Presentation 2: Maira Kussainova , DKU – <i>Introduction to Summer School and Trainers</i> (offline)		
		09:45-09:55	Trainer introductions: Tochukwu Omenma , Humboldt Research Fellowship, University of Nigeria, Nsukka, Nigeria		
		09:55 - 10:05	Jean-Paul Deroin , Université de Reims Champagne-Ardenne, Reims, France		
		10:05-10:15	Stuart Bowlin , A private pilot, UAV pilot, and cofounder of rTek		
		10:15-10:25	Ice-Breaking Participant Speech with PPT CVs (offline)		
		10:25-11:00	Presentation 3: Diana Burlibayeva , IFAS – <i>The Aral Sea: A Historical Tragedy</i> (offline)		
		11:00-11:20	Coffee break		
		11:20-11:35	Presentation 4: Maira Kussainova , DKU <i>Kahoot Quiz Group formation</i>		
		11:35-12:00	Presentation 5: Altynay Yespembetova – <i>DKU Academic Journals: CAJWR, CAJSCR</i> (offline)		
		12:00-13:00	Presentation 6: Dr. Aigul Kulnazarova , Tama University – <i>Water Governance and the Aral Sea in an International Perspective</i> (offline)		

	13:00-14:00	Lunch (Frau Irma Restaurant, 33 Kurmangazy Street)		
	14:00-14:25	Presentation 7: Alautdin Mambetkarimov , Director of Nukus Branch of IFAS EC – <i>Uzbekistan’s Actions on Environmental Stabilization</i> (online)		
	14:25-15:50	Presentation 8: Darya Zhandosova – <i>Exploring the Aral Through Photography: Nature, Decay, and Resilience</i> (offline)		
	15:50-16:40	Presentation 9: Aizhan Karabayeva , FAO National Project Coordinator – <i>CACILM-2 Project in Central Asia: Results and Implementation</i> (offline)		
	16:40-17:30	Presentation 10: Saida Nigmatova , Chair of UNESCO Global Geoparks National Committee – <i>Aral Geopark: New Potential for Sustainable Development</i> (recorded)		
	17:30-17:45	Wrap-up session		
Day 2 (16.08)	Almaty, DKU	09:00-09:50	Presentation 11: Larisa Kogutenko , AF-GEF National Coordinator – <i>Cryosphere and Related Hazards in the Context of Climate Change in Central Asia</i> (offline)	The second day will focus on applied themes and practical aspects of sustainable development in the Aral region: <ul style="list-style-type: none"> • Climate change and natural hazards in Central Asia's cryosphere • Water and environmental change studies in the Aral region • Alternative land use and ecotourism for sustainability • Rare ecosystems of Northern Aral and biodiversity conservation • Analysis of dust storms using satellite data • Water governance and international educational exchanges • Remote sensing applications for Aral Sea Basin research • Pasture restoration and carbon stock enhancement
		09:50-10:30	Presentation 12: Zhaniya Khaibullina – <i>Water and Environmental Research in the Aral Region</i> (offline)	
		10:30-11:10	Presentation 13: Rieks Bosch , Independent Expert – <i>Alternative Land Use in the Aral Region</i> (recorded)	
		11:10-11:30	Coffee break	
		11:30-12:30	Presentation 14: Mikhail Shamshidov – <i>Ecotourism</i> (online)	
		12:30-12:50	Presentation 15: Zhuldyz Salmukhanbetova , Institute of Botany and Phytointroduction – <i>Rare plant communities of the Northern Aral Sea Region</i> (recorded)	
		13:00-14:00	Lunch	
		14:00-15:00	Presentation 16: Zhanar Raimbekova – <i>Aral Sea Dust Storms: Satellite Analysis</i> (offline)	
		15:00-15:30	Presentation 17: Tochukwu Omenma – <i>Water Governance and Summer School Programs</i> (offline)	
		15:30-16:00	Presentation 18: Jean-Paul Deroin – <i>Use of Remote Sensing Data for Aral Sea Basin Research</i> (offline)	
		16:00-16:30	Presentation 19: Stuart Bowlin – <i>Pasturelands, Carbon, and Sustainable Development</i> (offline)	
	16:30-16:50	Safety Briefing: Maira Kussainova , DKU (offline)		

		16:50-19:00	Group walk to dinner restaurant / Transfer		
		19:00-20:55	Departure by train to Aralsk		
Day 3 (17.08)	Almaty – Aralsk	22:00	Arrival in Aralsk / Hotel check-in	All transportation expenses are covered	DKU
Day 4 (18.08)	Aralsk, Office of RSE "Barsakelmes"	09:00-09:30	Participant Registration / Opening Round Table at IFAS Office in Aralsk	Round table discussions on regional conservation efforts (desertification, restoration)	DKU, IFAS, Office of the
		09:30-10:30	Presentation 20: Amirkhan Kenshimov , Representative of the Executive Directorate of IFAS in Kazakhstan – <i>Transboundary and Cross-Sectoral Cooperation in the Syrdarya River Basin: Challenges and Opportunities</i> (offline)	Seminar with Central Asian government representatives and participants	Republican State Institution
		10:30-11:30	Presentation 21: Tynysbek Barakbayev , Aral Branch of LLP Scientific and Production Center for Fisheries – <i>On the activities of the Scientific and Production Center for Fisheries</i> (offline)	Lecture on water insecurity in Lake Chad Basin	"Barsakelmes"
		11:30-11:45	Coffee break	Visit to Aral Geopark ethnoroute, craft exhibitions, and local institutions.	
		11:45-12:20	Presentation 22: Khamit Kaniev , Director – <i>Activities of Barsakelmes Nature Reserve</i> (offline)		
		12:30-12:50	Presentation 23: Indira Tleukul , Committee on Forestry and Wildlife – <i>Activities of the Seed Selection Center</i> (offline)		
		12:50-14:00	Lunch		
		14:00-14:30	Training Presentation: Prof. Jean-Paul Deroin (France) <i>The use of remote sensing data to study the Aral Sea Basin in Central Asia</i>		
		14:30-15:00	Training Presentation: Stuart Bowlin (USA) (offline)		
		15:00-15:30	Training Presentation: Jude Tochukwu Omenma , University of Nigeria, Nsukka		
		15:30-15:45	Coffee break		
		15:45-18:00	Facilitator: Ainagul Baymakhanova , IFAS Aralsk Office <i>Visit to local social enterprises, including a soap production facility, bakery, sewing workshop, and fish processing plant.</i>		
		19:00	Dinner		
Day 5 (19.08)	Aralsk – Aralkum – Kamyshlybash Fish Hatchery	09:00-13:00	Field visit to the UNDP “Green Belt” project site in Aralkum village <ul style="list-style-type: none"> • Amirhan Kadirbekovich Kenshimov, IFAS Kazakhstan • Zhubatkhan Serikovich Abdykalykov, Akimat of Aralkum Rural District 		DKU, IFAS
		13:00-14:30	Lunch (local cafe)		

		14:30-18:00	Visit to Kamyshlybash Fish Hatchery (RGKP) of the Fisheries Committee, Koszhar village <ul style="list-style-type: none"> • Saken Myrzagaliev, Director of Kamyshlybash Fish Hatchery 	
Day 6 (20.08)	Akespe – Butakov Bay	19:00-20:00	Dinner	
		08:00-12:00	Visit to the thermal spring in Akespe Expedition route: Aralsk – Chinki – Akespe	DKU, IFAS
		12:00-13:00	Lunch (cafe near the thermal spring)	
		13:00-14:00	Facilitator: Dana Zhunissova, Meruert Seidumanova Interactive Session “ <i>Methodology of interviewing for scientific research</i> ”	
		14:00-18:00	Travel through the Akespe dunes, visit the northern coast of Butakov Bay, sightseeing, and visit to the eastern coast of Butakov Bay	
Day 7 (21.08)	Kokaral Dam - Lake Kamyshlybash – Koszhar Village	19:00-20:00	Dinner	
		08:00-13:00	Visit to Kokaral Dam Lecture on the dam construction, revival of the Northern Aral Sea, return of fish to the sea, and restoration of aquatic and terrestrial ecosystems <ul style="list-style-type: none"> • Speaker: Representative of Kazvodkhoz Visit to the Eco-Aral Scientific and Technical Center 	DKU, IFAS
		13:00-14:00	Lunch (national cuisine café in yurts)	
		14:00-18:00	Camp setup near Lake Kambash Preparation of group reports and presentations	
		19:00-20:30	Dinner	
Day 8 (22.08)	Cultural- Educational Day / Wrap- up	08:00-11:00	Visit to the Museum of Fisheries	DKU, IFAS
		11:00-13:00	Visit to the Local History Museum Visit to the Ruhani Zhangyru Library Interviews with local youth, honored experts, and NGO representatives	
		13:00-14:00	Lunch in Aralsk	
		14:00-17:00	Summer School Closing Session / Wrap-up	
		18:00-19:00	Dinner	
Day 9 (23.08)	Aralsk – Kyzylorda – Almaty	08:00	Departure to Kyzylorda	DKU, IFAS

