



## Summer School on the Aral Sea

22–31 August 2022

### Background

Today, more than ever before, water is recognized as a fundamental resource to ensure future sustainable and inclusive economic growth; and access to water is vital as a basic human right. In committing to achieve Sustainable Development Goals (SDG's), we aim to implement our summer schools on an annual basis, focusing on United Nations World Water Development Reports' themes. Having successfully accomplished goals of the previous Aral Sea summer schools in 2019-2021 years, we were able to fulfill our aim on supporting nature-based solutions approach towards environmental challenges. In committing to achieve Sustainable Development Goals (SDGs), we aim to implement our summer schools on an annual basis, focusing on the themes of United Nations World Water Development reports («Water and Climate Change», «Valuing Water», «Groundwater: Making the Invisible Visible») and IPCC reports. Consequently, the Aral Sea summer school will be entitled to the theme of “Impacts, Adaptation and Vulnerability”, and will serve youth – one of the most vulnerable groups as specified in the 2030 Agenda.

The young water and climate leaders of the Central Asian region are potential future decision-makers, representatives of academia and research, who will influence the development of the region and beyond. Thereby, we aim that the summer school will be a tool to empower and inspire the youth to choose nature-based solutions when addressing environmental challenges. We will lead an expert-to-youth knowledge exchange, as well as capacity-building and networking opportunities for future water and climate leaders. It is also crucial to raise awareness of the Aral Sea desiccation and how this man-made environmental tragedy continues to affect the local population, who had to migrate and leave their homes, and how the vulnerability of the region is increased through climate change in the recent decades and in the future. This year summer school will have a special focus on the groundwater as an important element of the conjunctive water management and raise the awareness about the role groundwater plays in the management of the water in Central Asia. Therefore, we envision an added value of the summer school in acknowledging the current situation in the Aral region and attracting more young specialists to engage with the topic in their professional and academic life.

### Thematic directions of Summer School:

- ❖ **IWRM.** Integrated Water Resources Management (IWRM) is a process which promotes the coordinated development and management of water, land and related resources in order to maximise economic and social welfare in an equitable manner without compromising the

sustainability of vital ecosystems and the environment (<https://www.gwp.org/en/gwp-SAS/ABOUT-GWP-SAS/WHY/About-IWRM/> ).

The GWP IWRM Tools are the key concepts and “how-to’s”, that have to be addressed in managing water. The tools encompass an array of resources stemming from technical and academic resources, official documents and GWP publications. 4<sup>th</sup> Aral Summer School will include theory and practical field studies in order to implement short case studies in the region of Aral.

- ❖ **Groundwater.** The dramatic shrinkage of the Aral Sea that has occurred after 1960 has also affected groundwater resources in the region, and this effect needs to be clarified and quantified because groundwater is essential for meeting freshwater demands in the area. In general, Groundwater reserves in the Aral Sea basin are estimated at 31 km<sup>3</sup>. Total actual groundwater extraction in the Aral Sea Basin was about 10.0 km<sup>3</sup>. The quality of groundwater in the region varies by salt content from 1 to 3 g/l. Almost half of the common volume of groundwater is sufficient for domestic needs, and approximately 70% for agriculture. A considerable part (about 30%) of regional groundwater has a transboundary nature, and its usage requires interstate consideration and mutual regulation ([http://www.cawater-info.net/aral/groundwater\\_e.htm](http://www.cawater-info.net/aral/groundwater_e.htm) ).

World Water Day is held annually on 22 March as a means of focusing attention on the importance of freshwater and advocating for the sustainable management of freshwater resources. It is about taking action to tackle the global water crisis, in support of Sustainable Development Goal (SDG) 6: water and sanitation for all by 2030. In 2022, World Water Day is celebrated under the theme “Groundwater: Making the invisible visible”, and UNESCO is the lead UN agency. (<http://en.unesco.kz/world-water-day> )



**Picture 1. Groundwater wells on a route of the 4<sup>th</sup> Aral Sea Summer School**

During participation in the Summer School, participants will visit three boreholes (Qasqaqulan, Aqbasty and Aqespe, Picture 1). Depending on different parameters (location, physical and chemical) these wells has different forms of use.

Thematic scopes will be structured to develop a better understanding of transboundary and regional cooperation, as well as discover the potential of youth for water and peace.

### **Methodology**

Expert-to-youth knowledge exchange, as well as capacity-building and networking opportunities for future water and climate leaders will be conducted. The summer school will be based on interactive thematic lectures, which then will be followed by working sessions to foster intergenerational dialogue and build the capacities of the participants. Field trips around the Aral Sea Basin provided an opportunity for the engagement of youth with the local community and interaction with civil society, which was an essential part of the experience and traditional knowledge sharing.

The agenda of the summers school includes one-two days of the theoretical preparation (lectures from the experts), five-seven days of the field visits (including field lectures, excursions, cultural events, etc.), and one day of the wrap-up session with the presentations from students with their ideas for the water issues solutions based on the collected information during the summer school.

### **Objectives**

- Expand knowledge of future water leaders in the field of sustainable natural resources management, disaster risk reduction and climate change;
- Expand knowledge and case study skills of participants through theoretical and practical field lectures using GWP toolboxes in the area of Integrated Water Resource Management;
- Expand importance of ground waters and its perspective use in future in the region of Aral disaster as an alternative to surface waters;
- Raise awareness of the youth through strengthening a platform for networking to create ties between different youth initiatives and allow new, concrete actions to emerge in the region and beyond;
- Promote dialogue between the youth and civil society.

### **Audience**

The Summer School addresses dedicated young professionals and students with an interest in Integrated Water and Land Resources Management and its practical implementation in policymaking. Eligible are participants from the following Central Asian countries: Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan, as well as Afghan students currently residing only in Kazakhstan. The representatives of Water UNESCO Chairs over the globe and UNESCO-IHP program partners will be also invited for the participation in the Summer School.

**A preliminary agenda of the 4<sup>th</sup> Aral Sea summer school 2022**

<b>Date</b>	<b>Location</b>	<b>Time</b>	<b>Events/Lectures/Field trips</b>	<b>Thematic scope</b>	<b>Partners</b>
<b>Day 0 (10.08)</b>	<b>Almaty</b>		Arrival of participants		
<b>Day 1 (11.08)</b>	<b>Almaty</b>	<b>Official opening ceremony</b>		<p>The lecture during the first day will be dedicated to the main topic of the SS “Impacts, Adaptation and Vulnerability” with the specific focus to the following areas:</p> <ul style="list-style-type: none"> <li>❖ Water and climate for economic prosperity</li> <li>❖ Ground water for sustainable development.</li> </ul> <p>The lectures will allow students to get familiar with the Aral Sea region and its main problems.</p>	UNESCO, GWP
		9-00	President of DKU - Dr. V. Rommel		
		9-15	Vice-president of DKU – Dr. B. Janusz-Pawletta		
		9-30	- Introduction to Aral Sea Summer School Water Programme Coordinator – L. Kogutenko		
		10-00	Transboundary groundwater governance from global to local perspective - UNESCO		
		11-00	Coffee break		
		11-30	The state of art of the groundwater management in Central Asia – Oleg Podolny		
		12-00	-Introduction to the GWP IWRM Action hub IWRM Specialist – LC Tremblay-Levesque Learning Assistant – Y. Demydenko		
		13-00	Lunch		
		14-00	- Lectures and trainings Training Exercise: Transboundary Role Play		
		15-30	Lecture 1: Introduction to Environmental Impact Assessments and Key Assessments Methodologies		
16-00	Training Exercise 1: How to conduct an Environmental Impact Assessment?				
18-30	Welcome dinner				
<b>Day 2 (12.08)</b>	<b>Almaty</b>	13-00	-Lunch	<p>The second day will introduce students with:</p> <ul style="list-style-type: none"> <li>-the technical aspects of the groundwater management by UNESCO.</li> <li>-GWP Toolbox, which will allow students to see the possible solutions for the water crises in Aral Sea region. GWP ToolBox IWRM ActionHub, an</li> </ul>	UNESCO, GWP
		14-00	Technical aspects of the groundwater management – UNESCO		
		15-00	Lecture 2: Introduction to Socio-Hydrological Modelling		
		15-30	Coffee break		
		16-00	Exercise 2: Building a Socio-Hydrological Model		
		18-30	Dinner		
		23-30	Departure from Almaty		

				online knowledge platform that supports and connects water professionals in designing and implementing IWRM actions. During that activities students will be divided to the working groups according to the topic.	
<b>Day 3 (13.08)</b>	<b>Almaty- Aralsk</b>			The travel arrangements of all participants will be organized	
<b>Day 4 (14.08)</b>	<b>Aralsk- Aralkum- Qamysty bas</b>	04-54	-Arrival -Check in	The visit of the Barsakelmes SNR allows students to understand the activities of the local government, international organizations and involvement of the local communities to the saving of the biodiversity at the Aral Sea region.	IFAS, Barsak elmes SNR office
		12-00	Lunch		
		12-30	-Museum of fishery		
		13-30	-Visit Barsakelmes SNR office Opening (Barsakelmes SNR office, IFAS, -Introduction to the region and SNR activities -Introduction to field agenda and safety precautions- Almas Kitapbayev		
		16-00	-Visit “Baytak Dala” LLP saxaul plantings (Aralkum)		
		18-00	-Arrival at STC “Aral” (Qamystybas) -Dinner		
<b>Day 5 (15.08)</b>	<b>Qamysty bas</b>		- Technical aspects of the groundwater management - Development of the idea of the solution the Aral Sea water problem - Cultural evening		
<b>Day 6 (16.08)</b>	<b>Qamysty bas - Koszhara - Qasqaqulan - Kokaral</b>		-Aklak hydro-construction -Lunch at Qasqaqulan -Visit cluster area Qasqaqulan (spectating after kulans) - Dinner -Overnight at Kokaral	During that day participants will be able to see the hydro-construction which serves to maintain the water level in the coastal lake system, and the Kokaral dam, which is maintaining the water level in the North Aral Sea and saves it from further drying. The visit of the Qasqaqulan allows students to understand the activities of the local government, international organizations and involvement of the local communities to the saving of the biodiversity at the Aral Sea region.	

<b>Day 7 (15.08)</b>	<b>Kokaral - Akbasty- Akespe</b>		-Kokaral dam and the small Aral Sea -Lunch -Thermal spring at Akbasty -Desertification process in Akespe village -Dinner	Students will be able to see the Kokaral dam mwhich is conserving the dwindling waters of the Syr Darya river and maintaining (and attempting to revive) the damaged ecology of the North Aral Sea, at the expense of sealing the fate of the larger South Aral.  There is also a radon source in Akbasty, next to which there is a bathhouse. Local residents collect this water in cisterns and take it to a neighboring village, where they sell it to shepherds. It is believed that radon water is good for camels. The water temperature is 62 degrees, the water comes from a depth of 1200 meters. In hot weather, it is not possible to swim in the water, the water does not lather.	IFAS, Barsak elmes SNR office
<b>Day 8 (16.08)</b>	<b>Akespe - Aralsk</b>		-Aral canyon -Akespe-Aralsk -Lunch -Presentation of participants - Wrap up -Farewell dinner	During the last day of the SS students will be able to present their ideas for solving water challenges in Aral Sea Basin based on the Toolbox and information collected during the field visits.	IFAS, Barsak elmes SNR office
<b>Day 7 (17.08)</b>	<b>Aralsk - Almaty</b>	10:00	Departure to Almaty		IFAS, Barsak elmes SNR office
<b>Day 8 (18.08)</b>	<b>Almaty</b>	<b>18:15</b>	Arrival to Almaty and departure for local participants	The travel arrangements of all participants will be organized	
<b>Day 9 (19.08)</b>	<b>Departur e day for internati onal</b>				

	<b>participa nts</b>				
--	--------------------------	--	--	--	--