



Section 9

Water
Education

9.1. Higher Education Institutions (HEIs) and Professional Development Centers

9.1.1. Kazakhstan

Al-Farabi Kazakh National University

The Al-Farabi Kazakh National University (Al-Farabi KazNU) was established in 1934. Today, the University is comprised of 16 faculties, 67 departments, 32 research institutes and centers, and a scientific technological park. More than 25,000 students and undergraduates study at the University following the multilevel system of higher professional education. The University delivers training in 87, 98, and 83 specializations for bachelor's, master's, and doctoral degrees, respectively.

At the Geography and Nature Management Faculty, the Dissertation Defense Board was established jointly with the Institute of Geography of Kazakhstan in the following fields: land hydrology, water resources and hydrochemistry; geo-ecology; physical geography, biogeography and geography of soil; economic, social and political geography. The Faculty is comprised of 5 departments, including the Meteorology and Hydrology Department and the UNESCO Department for Sustainable Development.

The [Meteorology and Hydrology Department](#) prepares bachelors, masters and doctors in hydrology and meteorology. The Department conducts research in the following areas:

- Dynamics of surface runoff in Kazakhstan in the context of climate change and runoff scenarios (forecasts) for the period up to 2050;
- Assessment of the impact of natural factors and economic activity on the state of urban water bodies (on the example of Almaty);
- Justification and development of technology to manage drought risks as one of the most important factors of food security in Kazakhstan;
- Climate change in Kazakhstan and its impact on surface runoff, ecosystems and economic activity.

The [UNESCO Department for Sustainable Development](#) was established in partnership with

leading foreign universities, such as the Columbia University (New York, USA), Polytechnic University of Lisbon (Portugal), Dubna International University for Nature, Society and Man (Russia), etc. The Department prepares specialists in ecology; life safety and environmental protection, geo-ecology and nature management.

In line with the "Global Energy and Ecology Strategy for Sustainable Development in the 21st century", "Kazakhstan 2050" Strategy and the Concept of Kazakhstan's transition to green economy, the research areas of the Department are set as:

- Addressing theoretical and applied issues related to water and water use;
- Organization of human safety and environmental protection;
- Development of energy- and resource-saving technologies;
- Alternative sustainable energy;
- Environmental management and economics.

Major Events in 2018:

According to the authoritative "Academic Ranking of World Universities-European Standard" (ARES), KazNU has become the [leader among higher education institutions in Kazakhstan](#).

[Al-Farabi KazNU will continue its role as the Global Hub of the UN "Academic Impact" Program until 2020](#). This decision was based on successful leadership of KazNU on sustainable development programs.

Al-Farabi KazNU took part in the [Eurasian Summit on Higher Education](#) (EURIE) in Istanbul on February 20th.

Al-Farabi KazNU hosted:

- [XXI Meeting of the Coordination Council](#) of the Commission on Science and Technology for Sustainable Development in the South ("COMSATS") (3 April). In

November 9, 2018, the decision was approved to establish [COMSATS Centre for Climate and Sustainability \(CCCS\)](#);

- [VII International Student Forum “Green Bridge Through Generations”](#), which was to promote values and principles of Sustainable Development and the Green Economy for future generations and discuss opportunities and options for a large-scale dissemination of the basic ideas of Sustainable Development on the Eurasian territory (9-10 April);
- [International Scientific Conference “Arid Lands: Sustainability of Nature and Society”](#) devoted to urgent problems of sustainable development in arid territories in the central Eurasia (11-12 April);
- 7th International Student Conference “New Silk Way Model United Nations (NSW MUN)” (27 April);
- [Round table](#) discussion on “Environmental problems in the city of Almaty” at the UNESCO Department for Sustainable Development (23 November).

Source: www.kaznu.kz/ru/

Kazakh National Agrarian University

The Kazakh National Agrarian University (KazNAU) was founded in 1929. The University consists of six faculties, 28 departments, seven research institutes, including the Research Institute of Water Problems and Land Reclamation, five innovation centers, Institute of Postgraduate Education, [Institute of Professional Development](#), Distance Learning Center, Farmers' High School, innovative greenhouse, “Agro-university” industrial training facility. In addition, the University publishes the “Agrarian University” newspaper (since October 15, 1957), scientific journal “Research and results” (since 1999), etc.

The University prepares bachelors in 41 specializations, masters in 39 specializations and doctors in 16 specializations. The University prepares also specialists for the water sector at the [Hydraulic Engineering, Land Reclamation and Business Faculty](#). The Faculty is comprised of four departments, including the [Water Resources and Land Reclamation Department](#), which offers the following specializations: water resources and water use (bachelor's degree – 254 students, master's degree – 13 students, PhD students – 19); land reclamation, rehabilitation

and protection (bachelor's degree – 126 students, master's degree – 17 students).

Based on the results of the academic years 2016, 2017 and 2018, KazNAU ranked first in the rating of universities of the Independent Agency for Accreditation and Rating and the Kazakh Independent Agency for Quality Assurance in Education in terms of preparation of specialists in the following areas: water resources and water use; land reclamation, rehabilitation and protection.

The Water Resources and Land Reclamation Department at the [Research Institute of Water Problems and Land Reclamation](#) conducts research on the following themes: “Transboundary river basins of the Republic of Kazakhstan and the People's Republic of China: scientific and applied bases for sustainable water supply of the population and economies until 2050 in the context of climate change”, “Better water use in rice irrigation systems in Kazakhstan”, and “Development of the system of hydraulic, chemical, biological, and physical reclamation for improved productivity of water and land resources in irrigated areas of Kazakhstan”.

Farmers' High School provides consulting and training services for managers and employees of farms in line with the International Extension Model.

KazNAU's Water Hub established with the support of ADB in 2014 conducts comprehensive research on water balance.

In 2016, the Agro-technology Hub (AgriTech Hub) – an international research institute for innovative technology in agro-industrial complex, was established at KazNAU.

Major Events in 2018

Documents Signed:

- [Memorandum](#) between AgriTech Hub and the University of Michigan on transfer of new technology and knowledge and methods of agro-industry resource base management (16 January); Memorandum of Cooperation in scientific and innovative development of the agro-industrial complex between AgriTech Hub and local authority (akimat) of the Kostanay province (29 March);
- Quadripartite Memorandum of Understanding between KazNAU, AgriTech Hub, the Tashkent Institute of Irrigation

and Agricultural Mechanization Engineers, and the Tashkent State Agrarian University (March, Tashkent);

- Memorandum of Cooperation between KazNAU and Nigde University, Turkey (16 April);
- Memorandum of Cooperation in Education between KazNAU and the University of Eastern Finland;
- [Memorandum of Cooperation](#) between KazNAU and the Warsaw University of Life Sciences;
- Agreement on Academic Cooperation between KazNAU and the Slovak University of Agriculture (18 June).

Events Organized:

- [International Winter School 2018](#) on: Water Management; Green Economy; Technology and Innovation in Agriculture; Nature Resource Management; Agronomic Innovation in Crop Production; Veterinary; and, Livestock Production Technology (22 January-3 February);
- Annual XXII Student Scientific Conference, where a contest of startup projects was organized among students and young scientists (26-27 April);
- [Meeting of the Council of Rectors](#) of leading agrarian universities in the CIS countries (15 April);
- [International Master's Summer School-2018](#) on: Water Management; Green Economy; Technology and Innovation in Agriculture; Nature Resource Management; Agronomic Innovation in Crop Production; and, Biotechnology and Food Safety (15-29 June);
- Central Asian AgTech Summit 2018 (6 December);
- Meeting on the establishment of the Kazakh Knowledge Hub on Integrated Water Resource Management (7 December).

KazNAU students also participated in the [Summer School](#) on land and water management for the Central Asia students (25 June - 4 July, CAREC-TIIAME Innovations and Scientific Research Cluster, Tashkent).

Source: www.kaznau.kz

Taraz State University named after M.Kh. Dulati

The Taraz State University named after M.Kh. Dulati (TarSU) was founded on 24 March 1998 on the basis of three higher education institutions: Zhambyl University, Zhambyl Hydromeliorative and Construction Institute, and Zhambyl Technological Institute of Light and Food Industry.

The University has 10 faculties and 45 departments. The total number of students is more than 12,000. The University provides multidisciplinary education in 102 professional fields, including 60 for bachelor's degree, 39 for master's degree, and 3 for doctoral degree. Since 2006, the University has established the Modern Educational Technology Department and Distance Learning Department.

Specialists for the water sector are prepared at the Faculty of Water Management, Environment and Construction established in 1962. There are eight departments at the Faculty, including that of Land Reclamation and Agronomy; Water Resources; Ecology; and Life Safety.

The Faculty prepares:

- bachelors in: land reclamation, rehabilitation, and protection; water resources and water use; life safety and environment protection; and ecology;
- masters in: water resources and water use; land reclamation, rehabilitation, and protection; hydraulic construction and structures; life safety and environment protection; ecology; and geo-ecology and environment management;
- doctors in: land reclamation, rehabilitation, and protection; hydraulic construction and structures.

Two research and production units function at the Faculty: Research Institute of Geoecology and Land Reclamation, Research Center "Senimdilik". There are students' scientific circles: Hydropower Engineering, Environmentalist, Agromelioration, and Land Surveyor.

The Faculty cooperates with scientific and industrial enterprises of Kazakhstan, including Kazakh Scientific Research Institute of Water Economy, RSE Zhambyl Vodkhoz, RSE Yuzhvodkhoz, Chu-Talas Basin Inspection, and RSE Kazyzhngiprovodkhoz.

The Faculty also maintains communication with the Shihezi University of the People's Republic of China, Moscow State University of Environmental Engineering, Moscow Institute of Hydro-Reclamation, Kyrgyz National Agrarian University named after K.I. Skryabin, All-Russia Research Institute of Hydraulic Engineering and Land Reclamation (VNIIIGIM), Uzbek Research Institute of Cotton Breeding and Seed Production, Tashkent Institute of Irrigation and Agricultural Mechanization Engineers, Kyrgyz National Agrarian University, Kyrgyz-Russian Slavic University, etc.

Source: www.tarsu.kz/ru/

South Kazakhstan State University named after M. Auezov

The South Kazakhstan State University named after M. Auezov (SKSU) is a state multidisciplinary higher education institution. The University is comprised of six faculties, two research institutes, SKSU LLP, SKSU College, Pre-University Training Center, Distance Learning Institute, Institute of Postgraduate Studies, Dissertation Council, and six higher schools, including the Higher School of Agricultural Sciences.

[The Higher School of Agricultural Studies](#) prepares specialists in 8 professional fields, including water resources and water use. The School is comprised of 5 departments, including the [Water Resources, Land Use and Agro-technology Department](#). In the academic year 2018-2019, 264 students study at the department.

Major Events in 2018

According to the results of the [national rating of the educational programs](#) for the academic year 2017-2018, 77 courses of SKSU entered the top three in the country by the Independent Kazakh Agency for Quality Assurance in Education (IKAQAE), including life safety and environmental protection – first place – and water resources and water use – third place. Based on the results of the national rating of the [best universities in Kazakhstan 2018](#) conducted by the Independent Agency for Accreditation and Rating (IAAR), SKSU also entered the top three in the country and took an honorable 3rd place.

SKSU hosted:

- International roundtable "Exploring Opportunities for Technical and Financial

Assistance to Green Projects in the Turkestan Region and City of Shymkent" (29 June). Memoranda of Cooperation were signed between SKSU, ONTUSTIK Regional Investment Centre, the Coalition for Green Economy and Development "G-Global", and the International Centre for Green Technology and Investment Projects to develop joint projects and attract international investments in research projects.

- Within the framework of the 75th anniversary of SKSU, a [regular meeting](#) of the Council of Rectors of Higher Educational Institutions of Kazakhstan was held on the theme "Ensuring Better Quality of Higher Education: Conceptual Issues and Strategies". Memoranda of Cooperation were signed with a number of Central Asian universities: Tashkent Institute of Architecture and Civil Engineering; Kyrgyz-Russian Slavic University; Uzbek State University of World Languages; National University of Uzbekistan named after Mirzo Ulugbek.

Source: <http://ukgu.kz/ru>, <http://ap.ukgu.kz/ru>

German-Kazakh University

The German-Kazakh University (GKU) was founded in 1999. Within GKU, the [Natural Resource Institute](#) was established; it provides a platform for strengthening research and knowledge exchange in the field of integrated water resource management in Central Asia.

GKU offers:

- [Central Asian Journal of Water Research](#) (CAJWR) – an open access online journal dedicated to all aspects of water management in the region of Central Asia. It is available in English and Russian (<https://www.water-ca.org/>).
- [Masters' Program in Integrated Water Resources Management](#) (MA IWRM) established in 2011 as the capacity building component of the "Water Initiative for Central Asia" of the German Federal Foreign Ministry.

Major Events in 2018

The Natural Resource Institute of GKU hosted:

- [training for civil servants](#) "Improved understanding of key water management issues by mid-level government

officials" in the regions of Kazakhstan (9-11 April, Aktau; 28 - 30 May, Almaty);

- 4th Workshop on [Climate and Water Law and Governance in Central Asia and Afghanistan for young civil servants](#) (24-26 September, Almaty);
- [International Workshop](#) "Prospects for the Development of Green Energy in the Aral Sea Basin" (28-29 November, Kyzyl-Orda).

JKU:

- undertook a youth [research expedition "From Glaciers to the Aral Sea" as part of the "Aral Sea Basin"](#) project with the support of CAREC, SDC, and IFAS (1-21 August). The participants worked in four areas: water and energy; effects of climate change; socio-economic aspects related to water; and transboundary cooperation (legal aspects);
- organized the National Student Contests on the Integrated Water Resource Management in Central Asian states. The winners of the national stages met in Dushanbe at the regional Olympiad, which coincided with the Youth Session of the International Water Decade (23 April - 13 May).

JKU students participated in the [Summer school](#) on "The basics of water management: integration of theory, practice and scientific research" (4-20 June, TIAME).

Masters in "Regional Studies: Integrated Water Resources Management" took part in the 2018 World Water Week (26-31 August, Stockholm, Sweden).

Sources: JKU, <https://dku.kz/>, <http://www.academic-waters.org/en/>

Nazarbayev University

Nazarbayev University (NU) was established in 2010. One of priority fields of the University is

water resources management. The University has set forth major research initiatives in the area of management and efficient use of water and water-energy-food-environment nexus.

Major Events in 2018

The Environment and Resource Efficiency Cluster (EREC) was established in NU in 2018 for developing innovative technologies and policies that implement best practices and solutions. EREC is composed of 16 researchers from different disciplines. They explore new interface between the environment, human society, natural resources and sustainable development.

The Graduate School of Public Policy (GSPP) at NU:

- developed the course on water – Water Resources Management and Policy (Fall 2018);
- organized in collaboration with the Imperial College, UK and with the support of the British Council, a Workshop on Transboundary Water Management in South and Central Asia (13-14 December). The workshop participants – researchers, scientists, policy makers and analysts from 14 countries – explored the concept of transboundary water management by focusing on existing practices of cooperation on transboundary river basins and water management in two regions. Four major issues related to transboundary water of Central and South Asia were discussed: i) environmental flows and resource allocation; ii) integrated water and land management; iii) climate change adaptation in transboundary water systems; and iv) development of policy planning and implementation frameworks for cooperation.

Source: <https://nu.edu.kz/>

9.1.2. Kyrgyz Republic

Kyrgyz-Russian Slavic University named after B.N. Yeltsin

The Kyrgyz-Russian Slavic University named after B.N. Yeltsin (KRSU) was established in 1993. Education at the university is delivered in 44 fields and specializations; there are seven faculties, 92 departments, six research institutes, and 15 scientific centers. Bachelors in the water field are prepared at the following departments: hydraulic engineering and water resources; engineering networks and equipment of buildings; protection in emergency situations (Architecture, Design and Construction Faculty); meteorology, ecology and environmental protection (Natural and Technical Sciences Faculty).

Major Events in 2018

In 2018, KRSU celebrated its 25th anniversary. As part of the anniversary, the following events were organized: International Cooperation Week (12-16 March), Scientific and Practical Conference “Get prepared for weather changes” (23 March), Exhibition of Student Works (28 March), International Scientific and Practical Conference “Disaster Risk Reduction” within the framework of the Sendai Program (27 April), and Roundtable on “Scientific and Innovative Activities of KRSU” (23 May).

University’s students participated in the V International Student Olympiad “Integrated Water Resources Management in Central Asia”, which was held at the premises of KRSU (April 23).

The staff and students of KRSU also participated in other events:

- Regional technical workshop on launching the Sendai Framework’s monitoring system. The project aims to build and strengthen capacity for disaster risk reduction and increase resilience at the local, national, and regional levels (27-28 February, Almaty);
- International Scientific and Practical Conference “Modern Research Techniques and Technologies” (18-20 April, Research Station of the Russian Academy of Sciences, Koi-Tash village);
- 18th International Scientific Conference “Sakharov Readings-2018: Environmental Problems of the 21st Century” (May 17-18, Minsk, Republic of Belarus);
- Second Central Asian International Environmental Forum (5-8 June, Tashkent).

The Hydraulic and hydropower laboratory has modified and re-launched a hydraulic ram on a spillway channel for watering of adjacent territory of the Faculty. It will be tested for reliability against the cases of failure.

Source: www.krsu.edu.kg/index.php?lang=ru

Kyrgyz National Agrarian University named after K. I. Skryabin

The Kyrgyz National Agrarian University named after K. I. Skryabin (KNAU) was established on the 30th of January 1993 (initially Zoo-Veterinary Institute). The University prepares research and teaching staff of the highest

and middle qualification and offers their re-training for the agrarian sector of the national economy.

The University is comprised of six faculties, 33 departments, four colleges, lyceum school, educational-experimental platform and the Center for Education, Research, and Innovation in the Sokuluk district, the Institute for International and Distance Education, four research institutes, including the Research Institute of Irrigation, and the Center for Distance Learning and Training.

Bachelors and masters are prepared for water sector at the Hydromelioration, Ecology, and Land Planning Faculty in the following specializations: hydraulic engineering; environmental engineering and water use; ecology and nature use. The Agronomic college of KNAU prepares specialists for the water sector in the following fields: land reclamation, rehabilitation and protection; hydraulic engineering; ecology and environmental protection.

Major Events in 2018:

Senior students of the Agronomic College of KNAU participated in a [study tour](#) to hydraulic structures of Chu province: the Nizhne-Ala-Archa off-stream and in-stream reservoirs, “Uzun-Kyr” WUA of the Issyk-Ata district, Ala-Archa settling basin, headwork and Tush canal in Alamedin district (31 May).

The China Agricultural University initiated and founded the “[Belt and Road & South-South Cooperation Agricultural Education, Science and Technology Innovation League](#)” (22 June, Beijing). KNAU has joined its membership from Kyrgyzstan. An agreement was signed between KNAU, the China Agricultural University and the Tarim University. At the premises of KNAU, the Center for Innovation Technology in Agriculture will be established.

KNAU hosted:

- International Scientific and Practical Conference of Young Scientists and Students (25 January);
- CAWa [Edu Workshop](#) “CAWa Tools in Water and Land Management” organized under the Regional Research Network “Water in Central Asia” (CAWa) project (12-17 October);
- For the first time in Kyrgyzstan and the Central Asian region, the [International](#)

[program of Wetskills Foundation](#) for exchange of students and young professionals in water resource management, where students of KNAU, Agronomic College of KNAU, and other Kyrgyz HELs participated (15-26 October);

- Short-term capacity building courses, [starting from 29 October at the Hydromelioration, Ecology, and Land Planning Faculty](#), for staff of the Department of Water Resources and Land Reclamation and its subdivisions, according to the contract signed in 2018.

As part of cooperation with other universities and research institutes:

- Students and lecturers from the Faculties of Hydromelioration, Ecology and Land Planning and Agronomy and Forestry attended the lecture by Prof. Patrick Van Damme of the Czech University of Life Sciences (Prague) on "The role of 'conservation through use' strategies in natural resource management. How forest biodiversity helps humanity to cope with the growing challenges of climate change".
- Prof. Song Soo Lim (Korea) delivered the lecture on "Agricultural development and production of competitive agricultural products" for students of 3-4 courses.
- For teachers and students of KNAU and Agronomic College of KNAU, a seminar was held on the FishEDU project. Lectures, practical and laboratory sessions were conducted by Lisa Nurminen from the University of Eastern Finland;
- Representatives of the Rhine-Waal University of Applied Sciences (Germany) delivered lectures for students and undergraduates of the Faculties of Hydromelioration, Ecology and Land Planning and Economics and Information Systems (12-13 November).

Source: <http://knau.kg/en/>

Kyrgyz State University of Construction, Transport and Architecture named after N. Isanov

The Kyrgyz State University of Construction, Transport, and Architecture named after N.I.Isanov (KSUCTA) was established on the 4th of

May 1992 on the base of the Kyrgyz Architecture and Construction Institute.

The [University is comprised](#) of 10 institutes and 37 departments, two colleges, 72 branches of departments, international faculties and centers (Kyrgyz-German Faculty of Applied Informatics; Indian-Kyrgyz Center of Information Technologies, Austrian-Central Asian Center of Geoinformation Sciences, Center of Industrial Ecology, Center of Technology Transfer, Kyrgyz Center of Geoinformation Systems, KNAUF Consulting Center, Engineering and Pedagogical Center of Professional Development), and the Research Institute.

Bachelors for the water sector are prepared at the Institute of Construction and Technology at the Department of Water Supply, Sewerage and Hydraulic Engineering in the following fields: water supply and sewerage; water resources and use; hydraulic engineering; integrated use and protection of water resources; environmental engineering and water use.

KSUCTA has the Center for Distance Education for the bachelor's and secondary specialized education programs. The Educational Portal of the Center provides information and methodological support for students.

To upgrade the skills of teachers of technical universities, the Engineering and Pedagogical Center for Professional Development was established in 2008 at KSUCTA.

Source: www.ksucta.kg/en/

American University of Central Asia

The American University of Central Asia (AUCA) was founded in 1993 in Bishkek. AUCA is an international, multi-disciplinary learning community in the American liberal arts tradition. Its curriculum includes the Preparatory Program (New Generation Academy), fourteen undergraduate majors and four graduate degree programs.

The University's:

- [Tian Shan Policy Center](#) (TSPC) is focused on research, analysis, and implementation of appropriate and effective public policies in the nations and communities of Central Asia. One of the areas of work of TSPC is sustainable environment program;
- [Center for Environment and Development](#) (CED) of Economics Department is

vibrant research institution, which promotes science-based policy leading to sustainable development. Research areas include green economy, natural resources and environment, water resources, natural resource management, energy, etc.

AUCA proposes the [Environmental Management and Sustainable Development program](#). Students learn green economy, climate change and biodiversity conservation, waste management and renewable energy.

Major Events in 2018

As part of its activities on sustainable development and environment, TSPC has joined the [Climate Network of Kyrgyzstan](#).

In September-October, TSPC studied the impact of climate change on water availability and welfare of rural population in the Kyrgyz Republic, including Bash Kaiyndy village (At-Bashy district, Naryn province), Korgon village (Leilek district, Batken province), and Markaz village (Kadamjai district, Batken province).

AUCA hosted:

- [Guest lecture](#) by Prof. Robert Costanza: Creating the future we want. Organized by TSPC, CED in partnership with GIZ (13 April);

- Conference-training, which presented results of the national research "Green Economy Learning Needs Assessment: Kyrgyz Republic" among the civil servants and higher education institutions of the country (3 July);
- [Conservation Asia 2018 Conference](#) (6-10 August);
- The [Green Economy Day](#) was held by CED in cooperation with GIZ as part of the Green Economy Week in the Kyrgyz Republic – 2018 initiated by the Ministry of Economy of the Kyrgyz Republic. Two "green" events were held: a series of presentations united by a common theme "Education and Science in a Green Economy" with participation of German expert; announcement of winners of the photo and video contest on green economy "Become eco-friendly!" among students and schoolchildren (17 October);
- "Go Green AUCA!" [campaign](#) organized by CED (29 November-13 December).

The largest global campaign "Rise for Climate" was organized in 95 countries on 8-9 September. The first event was held at Kyrchyn, where TSPC took part.

Source: www.auca.kg

9.1.3. Tajikistan

Tajik Agrarian University named after Shirinsho Shotemur

The [Tajik Agrarian University named after Shirinsho Shotemur](#) (TAU) was established in 1931. Nowadays, it is a scientific hub, which prepares highly qualified experts for agro-industry. It is comprised of nine faculties, 53 departments, two training farms in Yavan and Gissar districts, and the Research Institute of Biotechnology with branches in Tavildar and Shahrstan districts.

TAU prepares water specialists at the [Hydromelioration Faculty](#) in the following fields: hydraulic engineering; land reclamation and water sector; rational use and protection of water resources; land reclamation and water governance.

There is the [Center for Advanced Training of Personnel of Agro-Industrial Complex at TAU](#).

TAU cooperates with 83 higher education institutions in neighboring countries and beyond.

Major Events in 2018

Within the framework of the program of academic mobility, students of TAU studied at the Kemerovo State Agricultural Institute until the end of 2018. Training of Russian students in the Tajik university is planned in early 2019.

Meetings were held with the:

- President of the German-Kazakh University Dr. Markus Kaiser and Barbara Janusz-Pawletta. During the meeting they discussed organization of the International Olympiad "Integrated water conservation in Central Asia" with the involvement of students from all Tajik universities, academic mobility, master's studies, joint

research and development activities and also addressed the ways of establishing a network of Universities to solve water problems in Central Asia (16 February);

- Representatives of IWMI Regional office to discuss future cooperation (22 May).

The TAU students took part in the [summer school](#) on Geographic Information System and Remo-

te Sensing for Land and Water Resources Management in Climate Change Conditions organized for Central Asian students (25 June - 4 July, CAREC-TIIAME Innovations and Scientific Research Cluster on Water Resources, Tashkent). The participants received IWMI, TIIAME & CAREC certificates.

Source: <http://www.tajagroun.tj/en/>

9.1.4. Turkmenistan

Turkmen Agricultural University named after S.A.Niyazov

The Agricultural Institute founded in 1930 was re-named into the Turkmen Agricultural University of S.A.Niyazov in 1998.

The University consists of six faculties, 16 departments, and the Farming Research Institute. The Ashgabat, Turkmenabat and Bairamali agro-industrial secondary specialized schools focused on forty areas of specialization and the Research-Production Center of Akhalteke Horse Breeding are also in the structure of the University.

Specialists for the water sector are prepared at the Land Reclamation and Hydraulic Engineering Faculty. The Faculty is comprised of the Departments of Land Reclamation, Hydraulic Engineering and Land Management.

Major Events in 2018

Assistant lecturers and a student of the University became the winners of the research work contest held in 2018 by the Turkmen Academy of Sciences in cooperation with the Central Council of the Turkmenistan Youth Organization named after Makhtumkuli.

The University's students participated in a [student essay contest](#) "Women. Agriculture. Adaptation to climate change" held by the UNDP/GEF project "Supporting climate resilient livelihoods in agricultural communities in drought-prone areas of Turkmenistan" implemented together with the State Committee for Nature Protection and Land Resources of Turkmenistan (14 June, Ashgabat).

Lecturers, graduate students and students of the University took part in:

- the workshop, where the design aspects of drip and sprinkling irrigation systems were considered and results of joint research (agricultural research polygon in the territory of the "Shorgala" Daikhan

(farmers) Association, Geoktepe district, Ahal province) were discussed;

- Scientific and Practical Conference "Rational and efficient water use as a basis of sustainable development" (12 July, Center of Technologies/Academy of Sciences of Turkmenistan);
- Training in nature – and climate-based irrigation planning (19 August, Ashgabat).

Source: www.science.gov.tm (in Russian)

Turkmen Agricultural Institute at the Ministry of Agriculture and Water Resources

The Turkmen Agricultural Institute (TAI) at the Ministry of Agriculture and Water Resources was established in 2010. The Institute prepares water specialists at the Hydromelioration and Agricultural Mechanization Faculty in the following fields: operation of irrigation and drainage systems; hydrotechnology (water resources and management). The Institute has a modern CLAAS training base. The Institute also includes the Dashoguz Agro-Industrial Secondary Vocational School, which offers training in eight courses, including hydrotechnology for the water sector.

Major Events in 2018

The TAI students participated in a [student essay contest](#) "Women. Agriculture. Adaptation to climate change" (14 June, Ashgabat).

The TAI lecturers took part in:

- Scientific and Practical [Conference](#) "Rational and efficient water use as a basis of sustainable development" (12 July, Center of Technologies/Academy of Sciences of Turkmenistan);
- Training in nature – and climate-based irrigation planning (19 August, Ashgabat).

Source: www.science.gov.tm (in Russian)

9.1.5. Uzbekistan

Tashkent Institute of Irrigation and Agricultural Mechanization Engineers

The Tashkent Institute of Irrigation and Agricultural Mechanization Engineers was established first as the Engineering Land Reclamation Faculty at the Department of Hydraulic Facilities of the Turkistan State University in 1923. Initially, there were the Faculties of Hydromelioration and Mechanization.

Nowadays, the Institute is comprised of seven faculties ([Hydromelioration](#), [Hydraulic Engineering](#), [Agricultural Mechanization](#), [Mechanization of Hydromeliorative Works](#), [Energy Supply for Agriculture and Water Sector](#), [Land Management](#), [Organization of Water Management](#)), 36 departments, two lyceums (Yunusabad Academic Lyceum at TIAME, [International House Tashkent Lyceum](#) at TIAME), Innovation and Research Cluster on Water Resource Management, Center for Advanced Training and Retraining of Pedagogical Staff, Research Institute of Agricultural Mechanization, State Unitary Enterprise "Training and Research Center" of TIAME in the Urta-Chirchik district of Tashkent province, "Eco GIS" Center, Bukhara branch, State Unitary Enterprise "Regional Center for Retraining and Advanced Training of Farm Heads and Staff".

The Institute prepares bachelors in 19 specializations, masters in 16 specializations, and doctors in 11 specializations.

Together with colleagues from the Wageningen University (the Netherlands), Master's degree courses in Environmental Protection, Geoinformation Systems, and International Land and Water Management have been established.

Major Events in 2018:

The following documents were signed:

- Cooperation agreement with the Moscow State University of Construction, State University of Land Management, Kursk State Agricultural Academy named after Professor I.I. Ivanov and the South Federal University (18-19 October at the Russian-Uzbek Educational Forum);
- Agreements on training on the base of programs of the MGIMO branch, on opening of MGIMO classes at the

premises of the International House Tashkent Lyceum (18 October, Tashkent);

- [Cooperation agreement](#) between the Rostselmash Plant Group and TIAME, under which it is planned to create a modern training room at the Agricultural Mechanization Faculty; supply agricultural equipment for training polygon of the Departments of Agriculture Machinery and Tractors and Automobiles; provide internships at the Rostselmash Academy (12 December).

The first in Central Asia Innovation and Research [Cluster](#) for water management was launched (8 June); it hosted: [seminar](#) "Innovative academic research and teaching on water governance and agricultural development in Central Asia" of the Leibniz Institute of Agricultural Development in Transition Economies (IAMO) (9 June); [workshop of the "Water in Central Asia" \(CAWA\) project](#) on "Innovative Tools for Improved Water Management" (13-19 June); [summer school](#) for Central Asian students on Geographic Information System and Remote Sensing for Land and Water Resources Management in Climate Change Conditions (25 June-4 July); [training](#) in coverage of the efficient water use issues for press-services of ministries and agencies, as well as mass media (12-13 September).

A plan was developed for arrangement of the "Greenhouse and training base for modern water-saving technologies" at the premises of the State Unitary Enterprise "Training and Research Center".

TIAME hosted:

- a [summer school](#) on the theme "Basics of water management: integration of theory, practice and research" (4-20 June);
- a [Round Table](#) "Improved Management of Water and Energy Resources in the Pumped Irrigation Zone of the Amudarya River Basin" organized by IWMI within the framework of the USAID project "Reducing the level of competition for water resources in the Amu Darya river basin in Central Asia through effective water use" (4 September);
- an [International Conference](#) "Social science knowledge and sustainable agricultural development along the Silk Road" (30 October-2 November);

- UNESCO [Regional Training Workshop](#) on Water Cooperation in Central Asia (20-22 November);
- International Scientific and Practical Conference “Increased energy efficiency in the agrarian sector” (1 December).

TIIAME held:

- an expert meeting on establishing cooperation with Afghanistan at the regional level and developing a mechanism for getting master's degrees by Afghan women using new innovative methods (16 November);
- a [meeting](#) with the representative of the University of Oklahoma, USA, where achievements in science, exchange and cooperation program were discussed (13 December).

Awards

In the International Competition “University knowledge – 2018”, TIIAME entered the TOP-10 universities. In 2018, TIIAME was awarded in the nomination “Breakthrough of the Year” at the 1st Scientific Forum organized by the Ministry of Higher and Secondary Specialized Education and the Dutch company Elsevier under the “Science – 2020” project (November 23). Doctor of Biology, Prof. B.K. Karimov was elected as a full member, academician of the International Academy of Ecology and Life Protection Sciences, associated with the UN Department of Public Information.

For more information on capacity building and education, see Section [“Regional HEIs and Professional Development Centers”](#).

Source: TIIAME Administration, <http://tiiame.uz/>

National University of Uzbekistan named after Mirzo Ulugbek

The National University of Uzbekistan (NUUZ) was officially established on the 12th of May 1918. Specialists for the water sector are prepared at the Department of Land Hydrology, Geography and Natural Resources Faculty.

Bachelors are specialized in hydrometeorology and hydrology, and master's students get further education in hydrometeorology. There are also PhD and DSc programs on “Land hydrology. Water resources. Hydrochemistry” at the Department.

Major Events in 2018

The department's staff consists of 19 teachers, including one doctor of science, professor, three candidates of science, associate professors, two PhDs, associate professors. Head of the department, Prof. F.Khikmatov won the 1st place of the Republican contest “Best Teacher-2018”.

30 bachelors in hydrometeorology, 24 bachelors in hydrology, and two masters in hydrometeorology graduated from the department. Two teachers (K.R.Rakhmonov and S.A.Khaydarov) and two graduates (S.E.Kurbanbaev and Kh.T.Tukhtaev) of the department obtained a PhD degree and two (E.K.Khayitov and V.A.Rafikov) – DSc degree on “Land hydrology. Water resources. Hydrochemistry”.

In 2018-2019 academic year, students of the department were awarded the Mirzo Ulugbek State Scholarship (two students) and NUUZ Scholarship (two students). Also, students won the 1st place on Hydrology and Hydrometry (O. Mutalova) and the 3rd place on Hydraulics (D. Yarashev) at republican Olympiads.

The Department of Land Hydrology has established cooperation with more than 10 Universities in developed countries. In 2018, D. Turgunov, a doctoral student, completed an internship at the Lomonosov Moscow State University and Dr. G. Umirzakov completed an internship under the IVLP (International Visitor Leadership Program) Program in the US on water resources management.

Teachers and students of the department actively participated in international programs, e.g. summer school and field work on glaciology in Kyrgyzstan and Uzbekistan organized by the Fribourg University, Switzerland.

At present, staff of the department implements two projects (one fundamental and one applied) and is involved in two international grants.

In general, more than 1,200 hydrology engineers, bachelors of hydrometeorology as well as over 80 masters of hydrology and hydrometeorology graduated from the department over 1945-2018. Nowadays, more than 40 of them have DSc degree, and 300 are candidates of sciences (or hold PhD degree).

Source: Department of Land Hydrology, Geography and Natural Resources Faculty, National University of Uzbekistan named after Mirzo Ulugbek

9.2. Regional HEIs and Professional Development Centers

9.2.1. Regional Training Center at SIC ICWC

Water sector professional development courses in Central Asia were established at SIC by the ICWC decision (ICWC Protocol No. 24 of 23.10.1999). The courses were founded by the ministries of agriculture and water resources of five CA states, SIC ICWC, BWO Amu Darya, and BWO Syr Darya. Later, these vocational training courses were transformed into the Regional Training Center (RTC) at SIC ICWC. RTC branches were also established in Almaty (Kazakhstan), Bishkek and Osh (Kyrgyzstan), Dushanbe and Khujand (Tajikistan), and Urgench (Uzbekistan).

Vocational training in the water sector is delivered through short-term thematic courses. Representatives of different water use sectors (energy, ecology, etc.) are invited to training workshops. Leading experts from the region and foreign countries also deliver lectures on specific topics, such as water law and policy, etc.

Major Events in 2018

RTC undertook the following work:

- jointly with the Ministry of Water Management of the Republic of Uzbekistan and TIAME, programs, lectures and trainings were prepared and delivered to employees of water management organizations in Uzbekistan in October-December. For details, see Section [“Professional Development Courses and Trainings”](#);
- a training course on the R-programming “Opportunities of utilizing remote sensing for applied problems”, including lectures and exercises on: upload of RS-data;

basic functions of R; spectral analysis of RS-data; regression analysis of spectral and bio-physical data; linear modeling and classification;

- upon UNESCO’s request, developed the section “International water law: a Central Asian perspective” to the training course “Hydrodiplomacy, legal and institutional aspects of water resources governance: from the international to the domestic perspective”;
- one-day training as part of the EU Program “Sustainable management of water resources in rural areas in Uzbekistan: Technical capacity building”. The training was held on the theme “Development of water user associations” and addressed legal, institutional, technical and financial aspects of WUA functioning (August, Khorezm, Kashkadarya, Surkhandarya, Fergana, Samarkand, and Syrdarya provinces);
- at the invitation of GWP, lectures delivered on international water law at the Pan-Asia Workshop on Water Governance: international water law and multi-stakeholder processes (13-15 December, Kunming, China);
- developed a web-site of the ICWC Training Center (www.cawater-info.net/training/), which contains information on training activity undertaken under umbrella of ICWC, including materials of training courses, reports, publications of the Training Center, data on partners in CA countries and other relevant information.

9.2.2. University of Central Asia (Kazakhstan, Kyrgyzstan, and Tajikistan)

The University of Central Asia (UCA) was founded in 2000 as a private, not for profit, secular university through an International Treaty signed by the Presidents of the Kyrgyz Republic, Tajikistan, and Kazakhstan, and His Highness the Aga Khan; ratified by their respective parliaments, and registered with the United Nations.

The mission of UCA is to promote the social and economic development of Central Asia, particularly its mountain communities, by offering an internationally recognized standard of higher education, and enabling the peoples of the region to preserve their rich cultural heritage as assets for the future.

UCA is comprised of:

- [Undergraduate School of Arts and Sciences](#), which offers a five-year undergraduate program (residential campuses in Naryn, Kyrgyzstan, and Khorog, Tajikistan), including on Earth and Environmental Sciences developed jointly with the University of British Columbia (Canada);
- [Graduate School of Development](#) consisting of several scientific units, including the [Mountain Societies Research Institute](#) (MSRI), a transdisciplinary research institute within UCA's Graduate School of Development, dedicated to addressing the challenges and opportunities within Central Asian mountain communities and environments. The scientific results of MSRI are used to prepare graduates in Earth and Environmental Sciences. The Institute has also created a Knowledge Hub to serve as a central point for information and data related to mountain societies in the Central Asian region;
- [School of Professional and Continuing Education](#), which provides young people and adults professional and vocational qualifications in a flexible learning format;
- Central Asian Faculty Development Program (CAFDP), which offers potential teachers the opportunity to obtain additional education and implement research projects abroad.

Major Events in 2018

MSRI of UCA hosted jointly with:

- partners a '[Climate and Water Dialogue Forum](#)' aimed to identify climate impacts on water security, mitigation and adaptation policies, and how to enhance water and climate dialogues at various levels (19 June, Dushanbe);
- German Research Centre for Geosciences (GFZ) a 'Learning Landscapes through Environmental Research and Monitoring' [Summer School](#) (2-9 July, Naryn province);
- UNICEF a Youth Mountain Forum (YMF 2018)¹⁵, which was organized within the World Mountain Forum. The participants presented a 'Call to Action' (22 October, Bishkek).

UCA and the Government of the Kyrgyz Republic organized the Fourth World Mountain Forum (23-26 October, Bishkek).

UCA and the Regional Centre for Ecology and Environment in Central Asia (RCEECA) of the Chinese Academy of Sciences (CAS) signed a [letter of intent](#), recognizing many areas of mutual interest and potential synergies across a wide range of topics pertaining to environmental resources and development (14 November, Bishkek).

Sources: www.ucentralasia.org/Home/Index/RU, www.ucentralasia.org/Research/MSRI/RU

9.3. Professional Development Courses and Trainings

9.3.1. Professional Development Courses and Trainings in 2018

31 January-1 February, Tashkent – SIC ICWC Workshop "Transboundary Water Management Adaptation in the Amudarya River Basin to Climate Change and Future Challenges: Tools and Recommendations"

5-8 February, Shah Alam, Malaysia – Integrated Water Resources Management Training for Sustainable Development

22-23 February, Tashkent province - Training for strengthening IT potential of water and environmental NGOs

5-7 March, Tashkent, TIAME – Workshop on module design training and capacity-building program

14-16 March, Andizhan, Namangan, Fergana – UNDP trainings on implementation of GLOBALG.A.P international standard

24-25 April, Tashkent – Regional training on "Institutional framework for the implementation of IWRM principles in the field: Basin Councils"

¹⁵ Proceedings of the Youth Mountain Forum, https://wmf2018.org/ru/system/files?file=kmp/public/YMF18_PROCEEDINGS.pdf

4-16 June – Summer School in Water Governance: Frameworks and Negotiations organized by Geneva Water Hub

8-22 June, University of Würzburg, Germany – Summer school (classification of programming, crop types in the R program language, training in defining crop evapotranspiration from satellite) organized within the framework of the CAWa project

18-22 June, Tashkent – Seminar for water management trainers on innovation methods under the “Sustainable Management of Water Resources in rural areas in Uzbekistan: Technical Capacity Building” program (Component 2)

24 June-7 July, Almaty – Training on Climate Modeling

23-24 July, Tashkent – Seminar “Presentation and review of the content of training modules and advanced training programs for water professionals in Uzbekistan” organized jointly by UNECSO in cooperation with the Ministry of Water Management of Uzbekistan and TIIAME

24-26 September – 4th workshop on climate, water law and governance with participation of young civil servants from Central Asia and Afghanistan. It is devoted to legal aspects of implementation of the Paris Agreement and water law at the international, regional and national levels

16 October – Webinar on the International Water Law “Water, Armed Conflicts and Peacebuilding”, organized by the Geneva Water Hub and its Platform for International Water Law in cooperation with the DiploFoundation

13-15 November, Tashkent, TIIAME – UNESCO’s Management of Social Transformations (MOST) Program “Supporting young researchers in the field of water management through online peer review platforms”

20-22 November, Tashkent – [Regional Training Workshop](#) on Water Cooperation in Central Asia organized by the UNESCO Tashkent Office, UNESCO Almaty Office, UNESCO International Hydrological Program (IHP) and TIIAME under the in the framework of the UNESCO-IHP Project “Groundwater Resources Governance in Transboundary Aquifers” (GGRETA) supported by SDC

22-24 November, University of Würzburg, Germany – Training on the R program language

and land use classification organized within the framework of the CAWa project

23 November – Webinar on the International Water Law “Implementing the Water Convention: A look at the results of the first reporting exercise” organized by the Geneva Water Hub and its Platform for International Water Law in cooperation with the DiploFoundation

6-7 December, Almaty – Water Diplomacy: Workshop on Experience Exchange

13-15 December, Kunming, China – Pan-Asia Regional training on Water Governance, International Water Law and Multi-Stakeholder Processes.

Pursuant the Decree of the President of Uzbekistan No.PP-3003 of 24.05.2017 “On measures for radical improvement of the training system for agriculture and water engineers and technicians” and the Order of the Ministry of Water Management of Uzbekistan No. 74 of 01.08.2018 “On improvement of irrigated land conditions”, the Ministry of Water Management of Uzbekistan together with SIC ICWC and TIIAME conducted training courses at the Center for Retraining and Professional Development of Pedagogical Staff at TIIAME for:

- employees of hydrological and land reclamation field offices (11-20 October);
- managers of pump station and power engineering authorities (22-31 October);
- managers of reservoir authorities (1-7 November);
- senior officials of district irrigation divisions in all provinces of Uzbekistan (1st batch on 19-25 November, Republic of Karakalpakstan and Khorezm province; 2nd batch on 26 November - 1 December, Andizhan and Namangan provinces; 3rd batch on 3-8 December, Bukhara, Navoyi and Samarkand provinces; 4th batch on 10-15 December, Tashkent and Syrdarya provinces; 5th batch on 17-22 December, Surkhandarya and Kashkadarya provinces; 6th batch on 24-29 December, Djizzak and Fergana provinces).

9.3.2. Professional Development Courses and Trainings in 2019

25-29 March, Almaty – Regional Training of Trainers on Economic Tools Making Basin Council Sustainable

3-15 June, Geneva – Summer School on “Water Governance: Frameworks and Negotiations” by the Geneva Water Hub

10-14 June, Kyrgyzstan – Demonstration tour to the Padshaata River basin and celebration of the Padshaata River day

18 June, Almaty – Regional training seminar on gender equality in water management

18-19 June, Dushanbe – Capacity building trainings for loan officers, farmers and NCUs under the CAMP4ASB project

26-27 June, Tashkent – Capacity building trainings for loan officers, farmers and NCUs under the CAMP4ASB project

8-9 July, Almaty – CAWa Summer School “Methods and Tools for Assessment and Monitoring of Central Asian Water and Land Resources” at the German-Kazakh University.

