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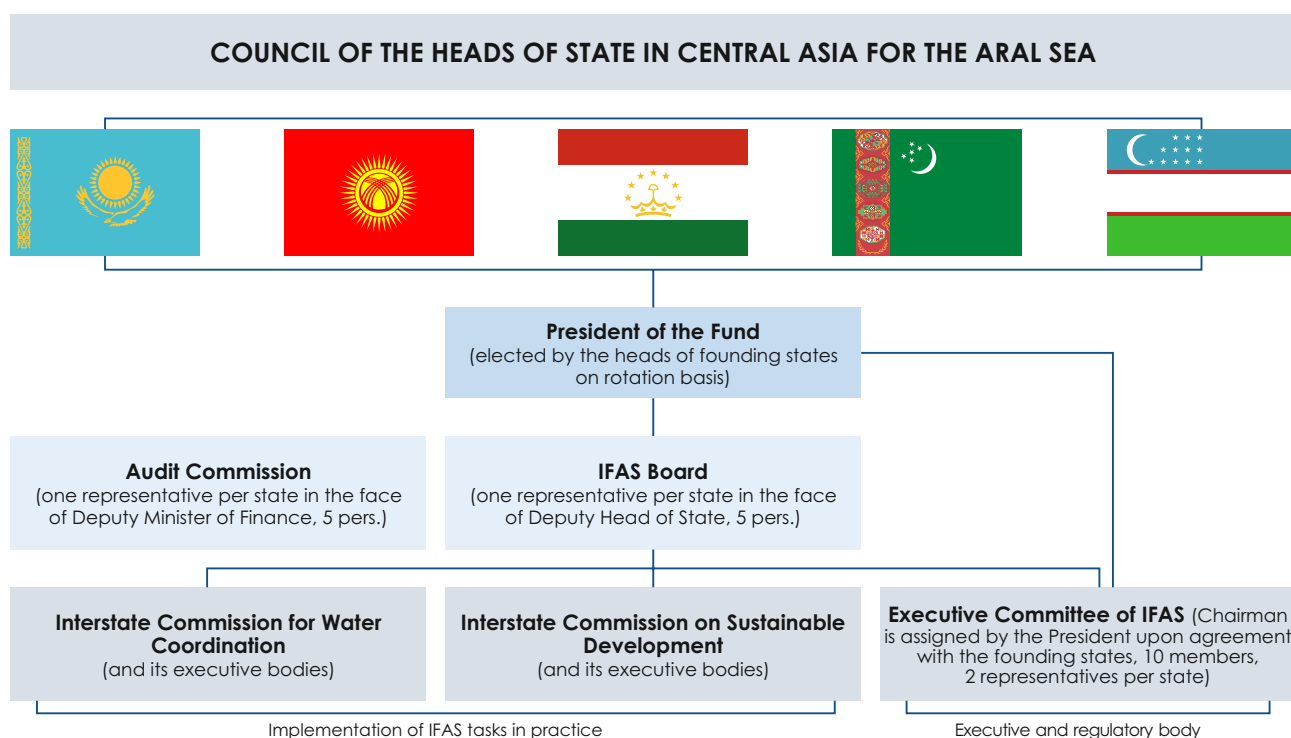
SECTION

IFAS and Other
Regional
Organizations
in Central Asia

3.1. International Fund for Saving the Aral Sea



The International Fund for Saving the Aral Sea (IFAS) was established by the decision of the Heads of the Central Asian states on the 4th January of 1993 with the aim of developing and funding the environmental and applied research projects and programs in order to improve the ecological situation in the areas affected by the Aral Sea catastrophe and to address the socio-economic issues in this region. The organizational setup of IFAS is depicted in the diagram below.



The chairmanship in IFAS is rotated every three years. In the period from 2019 to 2023 Tajikistan chaired¹⁷ IFAS and the President of IFAS was the President of Tajikistan Emomali Rahmon.

In 2023, IFAS celebrated its 30th anniversary. In the CA countries, with the purpose to promote the IFAS activities and to draw a greater attention of the world

community to the existing problems of the Aral Sea basin and, respectively, to their solution, series of national and regional events and a virtual photo exhibition were organized, short video films were produced, and the collections of articles, posters, calendars, booklets and other products were published on the occasion of the anniversary.



¹⁷ Decisions made during the 2nd (November 29, 2019, Tashkent, Uzbekistan) and 4th (July 21, 2022, Cholpon-Ata, Kyrgyz Republic) consultative meetings of the Heads of CA States

3.1.1. Meeting of the Council of Heads of IFAS Founding States

On the 15th September, in the city of Dushanbe, the meeting of the Council of the Heads of IFAS Founding States was held under the chairmanship of the President of Tajikistan E. Rahmon, with the participation of the President of Kazakhstan K. Tokayev, the President of Turkmenistan S. Berdimuhamedov, the President of Uzbekistan Sh. Mirziyoyev, the First Deputy Chairman of the Cabinet of Ministers of the Kyrgyz Republic¹⁸ A. Kasymaliev and the Special Representative of the UN Secretary General – Head of the UN Regional Centre for Preventive Diplomacy for Central Asia K. Imnadze.

A range of issues were addressed during the meeting such as the deepening of cooperation for the improvement of water-related, environmental and socio-economic situation in the Aral Sea basin, strengthening the IFAS role in solving the water-energy problems in the region, and enhancing the IFAS image in the international arena, plus the issues of widening the range of potential partners for implementation of target programs within the framework of the Fund.



Following the results of the meeting, the participants signed a number of documents, including the Dushanbe statement and the decisions of the Heads of IFAS Founding States – “On the results of the chairmanship of the Republic of Tajikistan in IFAS”, “On the activities to improve the institutional and legal framework of IFAS”, “On the election of the President of Kazakhstan Kassym-Jomart Tokayev as the IFAS President for 2024-2026”.

Thus, the IFAS chairmanship for 2024-2026 was moved on to the Republic of Kazakhstan.

We give below the extracts from the speeches¹⁹ of participants of the above meeting.

The President of Tajikistan, opening the meeting, highly appreciated the thirty-year activity of IFAS, but believes there is still much work to be done, especially taking into account the growing population in the region, to ensure economic development and combat the negative effects of climate change on water resources. “It is obvious that the climate change dictates the need to strengthen our cooperation and coordination in order to counter these challenges and, first of all, our cooperation in the water-energy sector,” he said.



As far as it concerns the issue of improving the institutional and legal framework of the IFAS, the Head of State pointed out that “... in the process of IFAS reformation, energy issues were included in the mandate of the Fund, and it is proposed to create a separate commission on energy within its framework... More coordinated actions, as well as modernization of the relevant infrastructure become essential in this context.”

The President of Kazakhstan noted that “IFAS is one of few successful mechanisms of regional cooperation demonstrating that Central Asia may be considered as an agent on the international arena”.

The Head of State turned attention of the participants to the challenges and problems facing the region and brought to notice of them that, in forming their water policy, the CA countries “should proceed from the fact that water is a limited natural resource which affects directly the well-being and sustainable development of the entire region”. He called for the accelerated completion of the process of improving the IFAS, proposing to expand, among others, the powers and responsibilities of the Board and Executive Committee of the Fund, to transform the Interstate Commission for Water Coordination into the

¹⁸ The Kyrgyz delegation took participation only as an observer.

¹⁹ For the full text of speeches, refer to <http://icwc-aral.uz/pdf/98-en.pdf>



Interstate Commission for Water and Energy and, finally, to elaborate the issue of equitable distribution of IFAS working bodies among the participating countries and to staff them with representatives of these countries.

The President emphasized the need to create a mechanism for long-term and sustainable cooperation for the effective use of water and energy in Central Asia, taking into account the interests of all countries in the region. He proposed to develop a work plan for the adoption of a unified automated system for water accounting, monitoring, management and distribution of resources in the Aral Sea basin; to establish a Central Asian project office on climate.

The President of Turkmenistan noted that "this is IFAS that has become an important regional platform for dialogue and cooperation to address the environmental and socio-economic problems caused by drying-up of the Aral Sea..." and proposed to "intensify the work on improving the legal framework of the Fund and to determine the goals and objectives of further work."



The Head of State proposed to establish a "Regional Center for Climate Technologies in Central Asia"; noted the need to develop and adopt "international documents aimed at the conservation and rational use of water resources in Central Asia"; proposed to enshrine "the basic principles and rules of political and diplomatic interaction between our states on water issues, based on mutual respect, equal partnership and taking into account the interests of all the countries" in the Central Asian Water Strategy, the development of which was earlier initiated by Turkmenistan. According to the Head of Turkmenistan, the Central Asian Water Strategy in the future could become the basis for the development of the UN Global water strategy.

The President of Uzbekistan noted that the role and significance of IFAS "has becoming even greater in the context of new emerging challenges and threats due to global climate change."



The head of state specified the tasks to be fulfilled under umbrella of the Fund in the future. In particular: (1) as part of the further improvement of the IFAS, it is proposed to "develop "Rules and Procedures" that clearly govern the matters related to cooperation and activities of the Fund"... "on the basis of the principle of intersectorality – water-energy-food nexus, taking into account the current environmental challenges"; (2) concerning the implementation of ASBP-4²⁰ it is proposed to entrust the Fund's Board "with the critical review of the current program and further preparation of "road maps" for implementation of each regional project"; (3) as part of strengthening interactions on systems basis, it is proposed that each of the countries "makes commitments to attract external assistance to regional projects, defining specific target values" and "to convene a special regional conference to accelerate the implementation of joint projects"; (4) it seems advisable to "develop long-term basin plans for the Amu Darya and the Syr Darya...", providing for "modeling various

²⁰ program of action for assistance to the countries of the Aral Sea basin

development scenarios in the basins of these rivers"; (5) it is proposed to organize the work "with youth at the regional level to build the culture of water and other natural resource care, support youth initiatives and start-ups through the adoption of a special program".

Regarding strengthening cooperation between the countries in the area of water conservation, it is proposed to "establish a Regional Platform for regular meetings of water, energy, environment and economy ministers". As to the construction of the Qosh-Tepa Canal in Northern Afghanistan, it seems advisable to "form a joint working group to study all aspects related to the construction of the Canal and its impact on flow regime of the Amu Darya River" and "to consider the possibility of involving representatives of Afghanistan in the regional water dialogue."

The First Deputy Chairman of the Cabinet of Ministers of the Kyrgyz Republic noted that the Kyrgyz Republic remains committed to development of constructive and mutually beneficial regional cooperation as having no alternative, "promotes initiatives at the international level which are aimed at sustainable mountain development, glacier and flow formation zone preservation."



The Kyrgyz side proposed to join efforts in the effective use of water and energy resources, increasing the resilience of this sector to various natural and anthropogenic impacts; and also emphasized the importance of reforming the IFAS, so that this process ensures the formation of a highly effective and transparent activity of the new regional structure, taking into account the interests of all CA countries.

3.1.2. Implementation of initiatives of the Presidents of CA States voiced at XII Summit of the Heads of IFAS Founding States

The Presidents of CA states voiced important initiatives and proposals, duly mentioned in the final document – a joint communique at the Summit of the Heads of IFAS Founding States (held on August 24, 2018 in the city of Turkmenbashi, Turkmenistan).

Information on implementation of these initiatives in 2023 is given in [Executive Committee of IFAS and its National Branches, ICWC of Central Asia and Key Water Developments in the Countries of Central Asia](#).

3.1.3. IFAS Board

In 2023 in Dushanbe, the IFAS Board had its regular meeting and addressed the following issues: (1) achieved outcomes of the Working Group on improvement of institutional and legal framework of the IFAS; (2) progress made in implementation of ASBP-4; (3) activities of EC IFAS for the period of

Tajikistan chairmanship; (4) results of participation in the UN 2023 Water Conference; (5) preparation for the meeting of the Council of the Heads of IFAS Founding States (held on September 14-15 in Dushanbe). As a result, the IFAS Board signed 8 decisions (June 5).

3.2. Executive Committee of IFAS and its National Branches

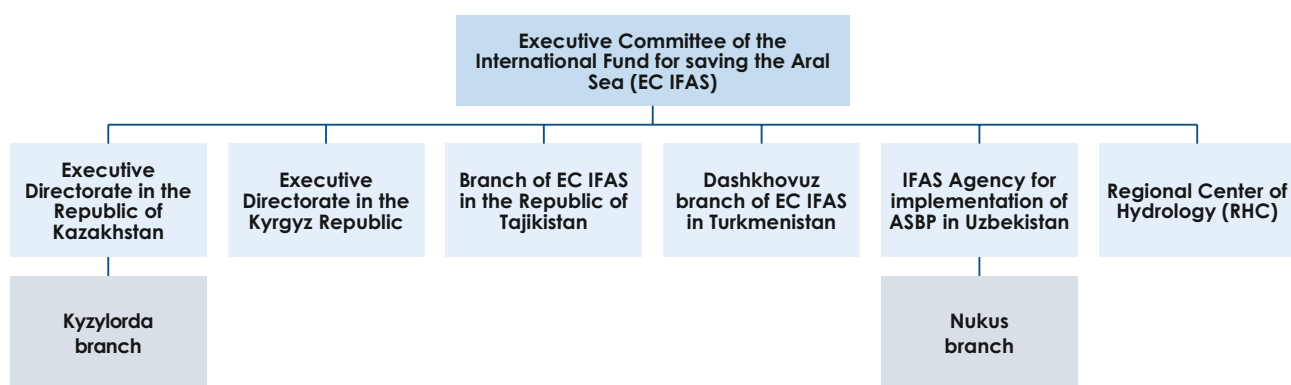
3.2.1. Executive Committee of IFAS

The Executive Committee of the International Fund for Saving the Aral Sea (EC IFAS) was formed by a decision of the Interstate Council on July 13, 1993. It serves as a platform for dialogue between the CA countries and the international community.

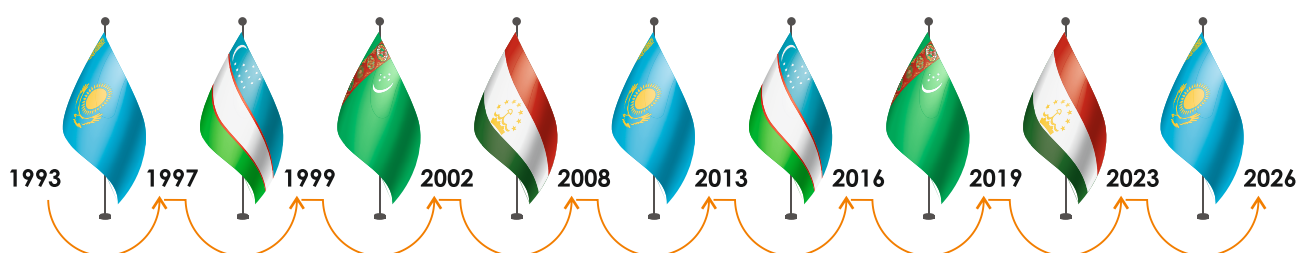
The chairman of EC IFAS is Rakhimzoda Sulton Nur-Makhmadpur. He was appointed on September 28, 2020 by the Decree of the President of IFAS – the President of the Republic of Tajikistan.

Activity of EC IFAS in 2023

IFAS: 30 years of regional cooperation. The main event dedicated to the anniversary became the International Conference "Central Asia: Towards Sustainable Future through Strong Regional Institution", which summarized the IFAS accomplishments over the past 30 years, as well as the challenges and opportunities for future activities. As part of the Conference, 7 side events were held on the following



Location of EC IFAS by Country and Year



subjects: (1) Building resilience in Tajikistan: upstream climate risk assessment approach; (2) Hydropower and gender equality for effective water governance in context of climate change: challenges and opportunities for Central Asia; (3) Sustainable development of Central Asia: small hydropower integration and trade-off analysis in the water-energy-food nexus of transboundary rivers; (4) Water security challenges in Central Asia: addressing the knowledge gaps and developing the action plans; (5) MODSNOW – an operational system to monitor water resources in Central Asia; (6) Increasing the capacity of the Interstate Commission for Sustainable Development (ICSD), the International Fund for Saving the Aral Sea (IFAS) and its institutions in matters of environmental protection and sustainable development; (7) Regional conference on strengthening networking and water cooperation among scientific institutes in Central Asia: scientific innovation for a sustainable future (June 5-7, Dushanbe). As a result, the participants adopted the Resolution.

At the Conference, veterans and staff of the Fund, as well as persons who contributed to the establishment of IFAS and development of regional cooperation were awarded commemorative medals (see [Central Asia Awards in Water-Related Fields](#)).

Improvement of the institutional and legal framework of IFAS. In 2023, three meetings of the Working Group (WG) on improvement of institutional and legal framework of IFAS were held: (1) **9th meeting** (online, January 17-19); (2) **10th meeting**, where options for more active interaction between IFAS and its institu-

tions were discussed (Laos, hybrid format, April 5-6); (3) **11th meeting**, during which a new option of the future institutional structure, issues of the permanent location of the EC IFAS in one of the CA countries and the new name of IFAS were discussed (Dushanbe, August 7-10).

As of the end of 2023, 2 stages of work were completed, within which the geographical scope of IFAS, areas of cooperation (water, energy, environment, socio-economic development), main goal, main and general tasks and sub-tasks of the Fund were agreed upon. An updated structure of the Fund has been prepared (for Stage 3) and is reviewed by the parties. The work have been started on the 4th stage, the purpose of which is to develop and agree upon the proposals on improved funding of IFAS management structure. An important point in the whole process was the active participation of the Kyrgyz Republic in activities of the Working Group.

ASBP-4²¹. According to the summary report of EC IFAS, as of the end of the year, 35 projects with a total budget of \$175.5 million and €54.135 million are implemented by international development partners in the Central Asian Region in support of ASBP-4. Some of them are listed below: "Central Asia Water and Energy Program"/CAWEP (WB, EU, Switzerland, Great Britain); "Climate Risk Management"; "Water Resources Management under Climate Change"; "Green Central Asia"; "Ecologically-oriented regional development in the Aral Sea region (Eco-Aral)" (GIZ); "USAID Regional Water and Vulnerable Environment Activity Project"/WAVE; "European Union-

²¹ this program was developed by the decision of the IFAS Board on 30.01.2018 and approved by the IFAS Board decision on 29.06.2021. It includes 34 project proposals in 4 areas: (1) integrated use of water resources; (2) environmental; (3) socio-economic; (4) improvement of institutional and legal mechanisms. The implementation period is scheduled for 2020-2030

Central Asia: Water, Environment and Climate Change Cooperation"/WECOOP III; "Sustainable Energy Connectivity in Central Asia"/SECCA; "Central Asia Nexus Dialogue Project: Fostering Water, Energy and Food Security Nexus and Multi-Sector Investment" and others (EU); "Blue Peace Central Asia" Initiative; "Cryospheric Observation and Modeling for Improved Adaptation in Central Asia"/CROMO-ADAPT; "Groundwater Resources Governance in Transboundary Aquifers" Project/GGRETA (SDC); "Improving Access and Strengthening Innovations for Water, Sanitation and Hygiene in Selected CAREC Countries and the Caucasus" (ADB), and others. Activities for more than \$16.25 million and €28.97 million have been completed under the ongoing projects.

National projects with a total budget of more than \$700 million are implemented in the IFAS founding states, including: Kazakhstan – approximately \$190 million; Tajikistan – \$52.76 million; Turkmenistan – \$4.7 million; and, Uzbekistan – \$195.5 million.

Events. EC IFAS organized: (1) jointly with the IHE Institute of Water Education, "Advanced training course in water policy tools and strategic planning under conditions of climate change" for EC IFAS staff and professionals of the CA countries (February-June); (2) with the support of the Government of the Republic of Tajikistan and the World Bank within the framework

of the UN 2023 Water Conference (New York, March 22-24), a high-level side event entitled "Central Asia: commitments to Water Action Agenda" (New York, March 23). During the event, the Chairman of the EC IFAS presented a joint statement of CA states (Republic of Kazakhstan, Republic of Tajikistan, Turkmenistan, Republic of Uzbekistan); (3) expedition²² for young professionals and scientists from the CA countries, with a visit of water facilities in the Amu-Darya River basin (April 25-May 4) and others.

Publications. In 2023, EC IFAS published: brochure "International Fund for Saving the Aral Sea: 30 years at the service of the people of Central Asia"; brochure "International Conference "Central Asia: Towards Sustainable Future through Strong Regional Institution" dedicated to the 30th anniversary of IFAS"; booklet "International Fund for Saving the Aral Sea celebrates its 30th anniversary"; book "30th anniversary of IFAS (main documents)", Dushanbe, 2023; "Regional Cooperation in Central Asia (collection of articles dedicated to the 30th anniversary of IFAS)"; photo album "International Fund for Saving the Aral Sea: 30 years at the service of the people of Central Asia".

Source: EC IFAS, https://pt-br.facebook.com/ec.ifas/?ref=page_internal

For more details, see the report on IFAS activities for the period of 2020-2023, <http://cawater-info.net/library/eng/ifas/report-ifas-2020-2023-en.pdf>.

3.2.2. Regional Center of Hydrology

The Regional Center of Hydrology (RCH) of EC IFAS was founded on August 23, 2002 by the decision of the IFAS Board in order to improve the system of

hydrometeorological forecasting, environmental monitoring and data exchange between the National hydrometeorological services in the region.

3.2.3. IFAS Executive Directorate in Kazakhstan

The IFAS Executive Directorate in Kazakhstan renders assistance in solving the topical issues and coordinating practical measures to improve water-related, socio-economic and environmental situation in the Kazakhstani part of the Aral Sea basin.

The focus areas of its activities and actions are directly aligned with those of EC IFAS and the ongoing operations are coordinated with the authorized representatives of Kazakhstan in EC IFAS.

Activity in 2023

Projects. With direct involvement and under the leadership of ED IFAS in Kazakhstan, the following international grant projects are in progress in the Kazakhstani part of the Aral Sea Basin (hereinafter – ASB). In particular:

■ "North Aral Sea (NAS) Development and Revitalization" Project in Kazakhstan (WB and the Government of Kazakhstan, the project will cover the Kazakhstani part of the Aral Sea region and the territory of Kyzylorda region) – the main project which is to be implemented within the years of Kazakhstan chairmanship in IFAS. The final goal is to fill the Saryshyganak Bay so that the sea reaches the coastal city of Aralsk. At this stage, one of 4 options described below are under selection: 1 – one-level water body in the NAS by raising the height of the existing Kokaral dam to 48 m; 2 – two-level sea system of the NAS/Saryshyganak Bay by constructing a new 52-meter-high dam in the NAS in the Saryshyganak Bay; 3 – one-level water body in the NAS by raising the height of the existing Kokaral dam and constructing a supply canal; 4 – without raising the water level in the NAS. The remaining part of the project implies restoration of wetlands to reduce dust and salt transfer from the Aral Sea bed;

²² with the support of the "USAID Regional Water and Vulnerable Environment activity" Project

■ as part of the project “Environmental Restoration of the Aral Sea”²³ (USAID, 430,000 USD, 2021–2024), 30 test plots (5 hectare each) are planned to be formed, where 200,000 black saxaul seedlings will be planted, plus fences and irrigation system for these seedlings – constructed. In 2023, an oasis of plantations was created at a distance of 50 kilometers to the west of Karateren village in the Aral district of the Kyzylorda region, where 110,000 seedlings were planted²⁴. For the first time, saxaul was grown with the use of hydrogel and closed root system methodology. The rooting rate was up to 60%. A well (500 m deep, water temperature 33°C, salinity 3.8 g/l) was drilled²⁵ to irrigate the plantings and to provide water for cattle and wild animals.

With the financial support of the “Freedom Finance” JSC, for the first time in Kazakhstan, a carbon certi-

fication process was initiated at the site, and the outcomes of this process will allow creating a Kazakhstani model of carbon credit that could be scaled-up throughout the country and to neighboring countries also.

Regional and international cooperation. Numerous meetings were held in the ED IFAS office in Kazakhstan with the representatives of the following organizations: (1) UNESCO global geoparks evaluator R. Hogan to discuss establishing a UNESCO²⁶ global geopark in the Aral Sea region and the “Service-procurement center Aral” LLP, within which the project proposal for “Development of lake-commercial farms for commercial fish cultivation” was submitted (February 15); (2) EKOROST. KZ, on application of bio-humus for forest reclamation on the dried bed of the Aral Sea (April 20); (3) Kazphosphate, during which the prospects of research efforts on the use of phosphogypsum in the Kazakhstani part of the Aral Sea region and on the dried bed of the Aral Sea were carefully examined. Following the outcomes of this meeting, an agreement was signed on a pilot research project (June 22); (4) the “Grass-Roots” program of the Japanese Embassy in Kazakhstan, within which the continuation of work on forest protection strip in Aralkum settlement was reviewed (September 26).

Agreements were signed between the ED IFAS in Kazakhstan and (1) Climate Global Control Trading LLC, under which “Climate CRON” is to be used as a payment instrument in connection with climate regulation and water management in the region (January 25); (2) and “Freedom Finance” JSC on rendering the financial assistance to the project “Environmental Restoration of the Aral Sea”.

Media outreach. An interview was given to the correspondent of MIA “Kazinform” on building a stable ecosystem in the Aral Sea (February 28).



Source: <https://kazaral.org/usaid/news-and-press-releases/>

Source: <https://kazaral.org>

3.2.4. Agency for implementation of IFAS projects in Uzbekistan

The GEF Agency of IFAS, established in 1998, is an IFAS working body with the status of an international organization, which is accredited by the Ministry of Foreign Affairs of RUz as a representative office of EC IFAS in Uzbekistan²⁷.

Activity of GEF Agency in 2023

Activity in 2023 was in line with the financing plan of actions aimed at mitigation of the consequences of

the Aral Sea ecological catastrophe, comprehensive socio-economic development in the Aral Sea region and assistance to ASB countries for 2022–2024 (Resolution of the Cabinet of Ministers of RUz No.42-F²⁸ dated 07.02.2022).

Projects in the Southern Aral Sea Region are implemented jointly with the Nukus branch of EC IFAS at the expense of the state budget and investment funds of Uzbekistan as a contribution to IFAS, and also

²³ within the framework of the “USAID Regional Water and Vulnerable Environment activity” Project/WAVE

²⁴ 60 thousand seedlings were planted in 2022

²⁵ for the first time, water exploration works for agriculture needs and ecosystem improvement are carried out on the dried bed of the Aral Sea

²⁶ by 2024, the UNESCO global geoparks network includes 195 territories in 48 countries of the world. China occupies the leading position by the number of global geoparks, with 41 UNESCO global geoparks registered

²⁷ accreditation certificate No.7 dated 16.02.2023 and valid until 16.02.2026

²⁸ in fulfillment of the Resolution of the Cabinet of Ministers of RUz No.149 dated 19.03.2021 “On organizational matters of the Permanent Representative of the Republic of Uzbekistan in the EC IFAS”, <https://lex.uz/ru/docs/5338744>

by attracting the grant funds from donors. Based on the financing plan adopted by the Resolution of the Cabinet of Ministers of RUz No.42-F dated 07.02.2022, the resources were distributed among the following projects:

- "Construction of small local water bodies in the Amu-Darya Delta. Phase II" for two facilities: (1) "Reconstruction of the Muynak canal from PK 0+00 to PK 250+00 in Muynak district" (total project cost the - UZS 32.432 billion, contractor – SUE "Zarafshon Maxsus Suv Qurilish"). Reconstruction of 21.3 km of earthen channel and construction of 3 km of a new section to increase the flow capacity from 25 to 44 m³/s have been fully completed. The state commission has started its work for acceptance of this facility (the first quarter of 2024); (2) "Completion of construction of diversion canals, enforcement of tail-water and repair of mechanical equipment at the existing outlets of the Rybachie reservoir, plus reconstruction of the tail part of the dam of the Rybachie reservoir and construction of a new dam from PK 71+00 to PK 122+00 to prevent canyon-formation processes" (total project cost – UZS 20.511 billion, contractor – "Ellikkala Maxsus Suv Pudrat" LLC). As of 31.12.2023, UZS4.394 billion has already been disbursed.

- Afforestation in two sites: (1) "Protective afforestation in Akhantai site by local trees and shrubs" to the north-east of Muynak town on an area of 8,703 ha (total cost – UZS3,374.640 million, contractor – Muynak State Hunting Forestry). In 2023, works on the site have been completed. Drawing-up of the state acts for the acceptance commission is underway; (2) "Protective afforestation in Akkum side by local trees and shrubs" to the north of the Sudoche lake system on an area of 2,082 ha (total cost – UZS3,384.085 million, contractor – Kungrad State Forestry). In 2023, works for UZS655.169 million have been completed, and since the start of work UZS2,660 million were disbursed.

- At the expense of investment funds of Uzbekistan, the project "Reconstruction of a road dam (10.6 km) around Maipost Lake and construction of a spillway structure (capacity 1250 m³/s) on the Amu Darya River (Akdarya) and measures to prevent canyon-formation processes in Domalak Lake" (general contractor – Ko'prik Qurilish JSC) is underway. In 2023, works worth of UZS52.808 billion were completed, other costs of the client were estimated at UZS1.575 billion. All works shall be completed by the end of 2024, but only upon allocation of the essential funds.

A new project²⁹ "Construction of an irrigation system on the bottom of the dried Aral Sea for protection of green cover, development of cattle breeding and

improvement of its forage base, and also for provision of the essential conditions for wildlife" (UZS4 billion from "Almalyk Mining and Metallurgical Complex" JSC, UZS3 billion from Uzneftegaz JSC, contractor – Ko'prik Qurilish JSC) was launched. Some amendments were made in the initial project with the purpose to preserve trees and shrubs along the route, namely, the start point of the route was displaced to PK223 of the dam of the Rybachie reservoir. As of 31.12.2023, preparatory work for UZS478.675 million have been completed.

Projects under coordination by the GEF Agency of IFAS:

- "National Water Resources Management Project in Uzbekistan", Phase 2 (01.01.2020-31.12.2023, SDC grant, project area – 13 Basin Irrigation System Administrations (BISA), 13 land reclamation field offices, 48 Irrigation System Administrations (ISA) and 156 district irrigation departments). The project outcomes include:

(a) *regarding the strategic, regulatory and institutional framework*: with the assistance of the MWM Uz (Ministry of Water Management of the Republic of Uzbekistan), (1) a comprehensive strategic and regulatory IWRM-based framework for this sector was developed, approved and adopted (Water Concept³⁰, Water Strategy³¹, draft Water Code and draft Water Strategy 2024-2026 were prepared); (2) the Concept of an integrated National Information System for Water Resources Management is gradually implemented. The following was developed: (1) land reclamation information system. It was adopted in day-to-day practices of land reclamation field offices of the Ministry of Water Management of the Republic of Uzbekistan; (2) Smart Water system. Training sessions on using the system were conducted for the staff and it was introduced in activities of water management organizations;

(b) *regarding water management organizations and water users*: the mobile application TOMCHI was updated to provide access to knowledge on water saving technologies (WST) for more than 10,000 users and integrated with other ministries; 156 district irrigation departments were fully equipped and authorized to function as a link between the state support system and water users; new courses and guidelines on WST were delivered to 9 professional colleges related to water management, and demonstration sites were arranged and laboratories were equipped. The WST guidelines were used in training more than 80,000 farmers in the country within the framework of the "Farmers School" initiative of the Ministry of Agriculture of RUz. The gender assessment was conducted and a Gender mainstreaming action plan was drafted for IWRM training.

²⁹ by Order No.151-F/13 dated 28.03.2023 of the CM RUz and under the instruction of the President of Uzbekistan given in the course of his visit to the Republic of Karakalpakstan on February 23-24, 2022

³⁰ Decree of the President of RUz No.UP-6024 dated 10.07.2020 "On approval of the concept of development of the water sector in the Republic of Uzbekistan for 2020-2030", <https://lex.uz/ru/docs/4892946>

³¹ Decree of the President of RUz No.PP-5005 dated 24.02.2021 "On approval of the strategy for water management and irrigation sector development in the RUz for 2021-2023", <https://lex.uz/docs/5307921>

The external evaluation of Phase II (February 2023) demonstrated a high efficiency of project activities. A Mandate for implementation of the project 3rd phase was signed between the Swiss Confederation and GEF Agency of IFAS for 2024-2027 (December 12);

■ “Monitoring of biodiversity of wetlands in the South Aral Region (jointly with the Karakalpak Natural Science Institute under OSCE’s support): two expeditions were conducted along Sarbaska Bay (Rybachie) – Mezhdurechie Reservoir (Shege and Kuksu lakes) and Daukara settlement – East Karateren Lake (Takh-takupyr district) and South Usyurt National Park – Sary-kamysh Lake routes. Based on their findings, a rapid assessment of the state of plant and animal biodiversity of wetlands in the South Aral Region was made and relevant recommendations were provided.

Cooperation through regional projects. (1) “USAID Regional Water and Vulnerable Environment Activity Project”/WAVE (October 2020-September 2025, \$24.5 million), a contribution was made to the subproject “Training for Government Officials from Central Asia on Water-Energy-Food-Ecosystems Nexus”³²; (2) “Environmental Restoration of Aral Sea II”/ERAS II (USAID, October 2022-September 2025), the GEF Agency took part in the meeting of Uzbek-Kazakh Working Group (Tashkent, October 19).

The GEF Agency of IFAS (1) provided assistance³³ for the projects “Ecologically-Oriented Regional Development in the Aral Sea Region”/ECO-ARAL (2021-2024, BMZ, GIZ) and “Development of Innovative Climate Resilient Technologies for Monitoring and Controlling of Water Use Efficiency and Impact of Salinization on Crop Productivity and Livelihood in Aral Sea region” (2021-2025, JICA); (2) prepared a feasibility study for Component I “Coordinated water resources management as a basis for achieving land degradation neutrality (LDN) in critical areas of the ASB biodiversity” under the project “Conservation and Sustainable Management of Lakes, Wetlands and Riparian Corridors as Pillars of a Resilient and Land Degradation Neutral Aral Basin Landscape Supporting Sustainable Livelihoods” (2022-2026, UNDP-GEF, \$3,552,968). Negotiations with the UNDP office in Uzbekistan are in progress to get a mandate for implementation of Component I.

The GEF Agency signed: (1) a Memorandum of Understanding with the ED IFAS in Kazakhstan and the company “International Center of Climate Change Technologies” (Abu Dhabi, UAE) that implies a possibility to cooperate for development of proposals regarding the feasibility and implementation of the project on adoption of the “Clear Sky Manager New Generation” climate system; (2) a Memorandum of Cooperation with the “ASTANA – MEREY ADAM” International Foundation (Kazakhstan-Turkey) to expand joint activities under the “Environmental Restoration of the Aral Sea” project; (3) a Memorandum of Cooperation with the group of companies “BASALT UZBEKISTAN”.

Activities in support of IFAS. The GEF Agency took part in briefings and coordination meetings of EC IFAS and its branches in the countries, as well as in activities of the working group on improvement of institutional and legal framework of IFAS (see details in “EC IFAS”).

Political and civil engagement. The GEF Agency took part in: (1) meetings of the Expert Group of the Committee on the Aral Sea region development and ecology (May 1, May 29, November 22); (2) 16th Plenum of the Central Council (May 11), conference of the Tashkent City Party Organization (May 19), IV Congress of the Ecological Party of Uzbekistan (May 30).

In the course of the year, at the request of ministries and agencies, the GEF Agency of IFAS prepared proposals and analytical materials on the improvement of regional cooperation in water sharing in ASB; situation in water management in the Aral Sea region; transboundary water cooperation and the importance of strengthening the IFAS role; water-energy issues; problems of the Aydar-Arnasay system of lakes; water use situation and trends in Afghanistan, etc.

International cooperation. The GEF Agency of IFAS cooperated with the Uzbek branch of SIC ICSD; KOICA and GGGI on “Green Rehabilitation Investment Project for Karakalpakstan to address impacts of the Aral Sea crisis”; ADB and CAREC in preparation of the Water Pillar under the 2030 CAREC Strategy, etc.

In support of the Global Water Partnership (GWP), the GEF Agency of IFAS provides administrative management and facilitates implementation of the annual work program of the National Water Partnership (NWP) of Uzbekistan. The following events took place: (1) a general meeting of the NWP, where a new coordinator A. Tulyaganov was elected (May 23); (2) roundtable dedicated to the 30th anniversary of IFAS (May 23).

The GEF Agency of IFAS is an active member of the Asia Water Council (AWC). Mr. V.I. Sokolov took part in the 17th and 18th meetings of the AWC Board, 4th General Assembly of the AWC, as well as in the events for launching the 3rd Asia International Water Week (AIWW) (Songsan, Republic of Korea, July 5-8).

The Agency also took part in the Asia-Pacific Session “Enhancing Local Resilience through Water-Culture-Innovation Nexus” in the second day of the 32nd Stockholm World Water Week (online, August 21).

At the 25th International Congress on Irrigation and Drainage, Mr. V.I. Sokolov was elected a Vice-President (Vishakhapatnam, India, November 1-4).

For more details on events with involvement of the GEF Agency of IFAS, refer to <https://aral.uz/wp/category/event/>.

³² launched on December 2, 2021 under coordination of the Kazakh-German University

³³ Head of the GEF Agency of IFAS V.I. Sokolov is a member of the Steering Committee

Media outreach. Events organized by the GEF Agency of IFAS were covered in media and on the web, namely: tv-channels "Uzbekistan 24" (February 24, September 19, October 20), "Khabar 24" (March 4), Poytaxt (May 22), "Problems of the day" specially for the TV channel "Around Uzbekistan" (June 21), "Dunyo bo'ylab" (June 5, September 19, September 21, October 10, October 26, December 30); web portals "Third Pole" (May 18), "Sreda.uz" (May 25, May 27, June 6); "Al-Yamama Press" (May 25, June 1),

CABAR.asia (October 31); data portal "Karavansaray" (May 30), UzTREND (November 15); newspapers "Ishonch-Doverie", No.27 (1288) (June 23), "Vremya" (November 6, December 6), "Pravda Vostoka", No.252 (30289) (December 3).

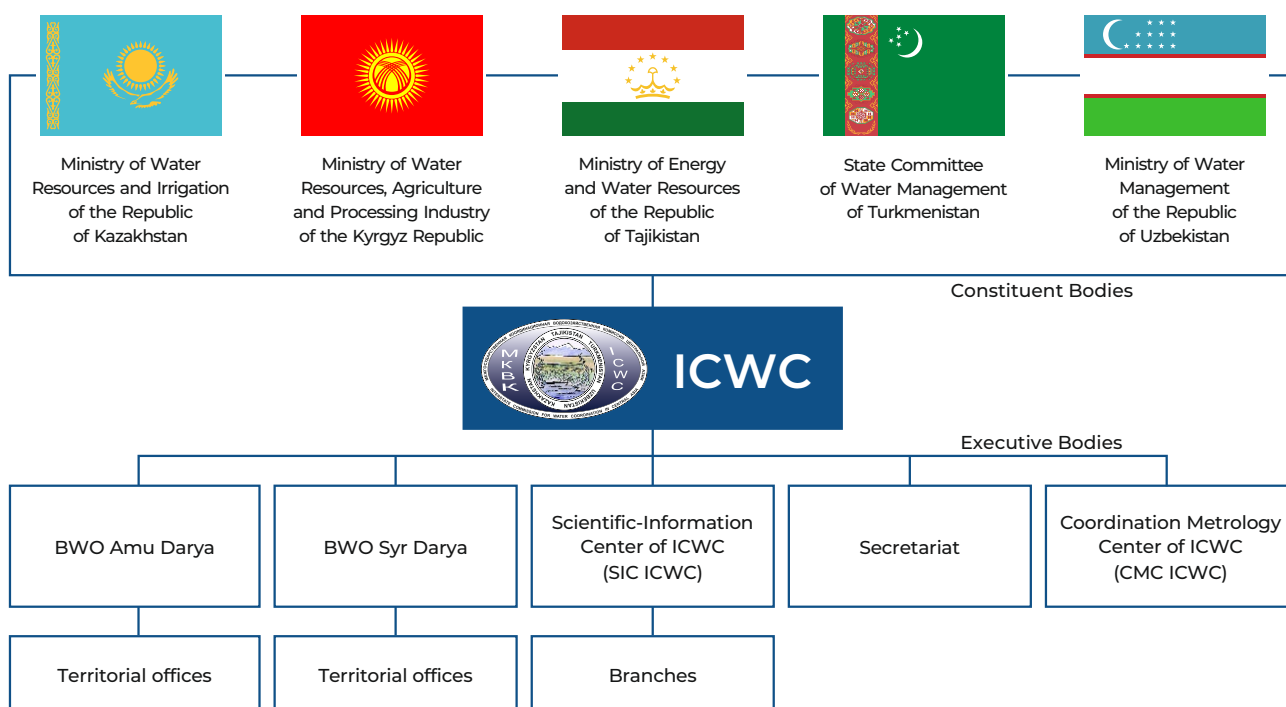
For publications, see the links: <https://aral.uz/wp/publications/>, <https://aral.uz/wp/publications/p3/>.

Source: GEF Agency of IFAS

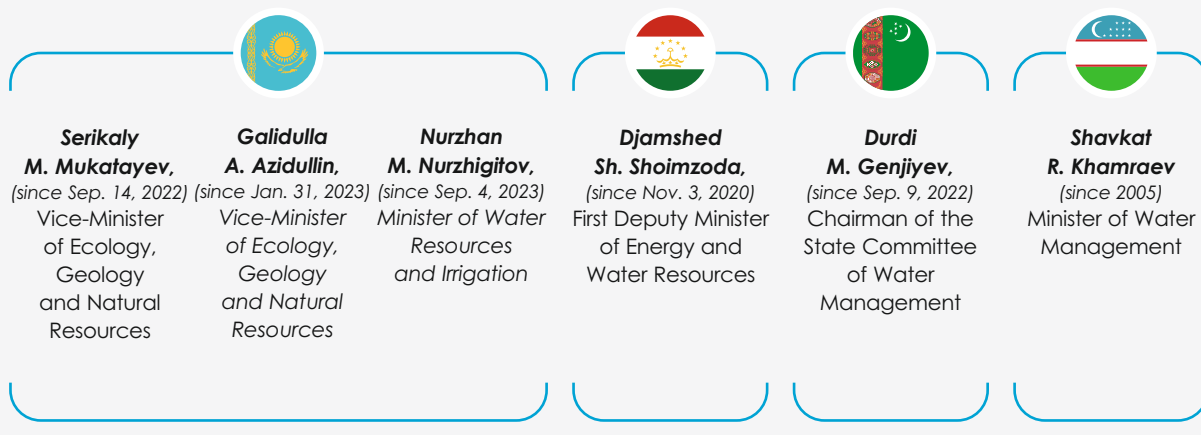
3.3. ICWC of Central Asia



The Interstate Commission for Water Coordination in Central Asia (ICWC) is a regional body of the CA states that deals with the issues related to management, efficient use and protection of water in the interstate sources of the Aral Sea basin and implements the jointly developed programs on the basis of cooperation and mutual respect for the parties' interests. The Commission was formed on February 18, 1992. The organizational set-up of ICWC is shown in the diagram below.



ICWC members in 2023



3.3.1. ICWC meetings

In 2023, ICWC held two meetings: 84th meeting (May 10, Dushanbe, Tajikistan) and 85th meeting (November 1-2, Tashkent, Uzbekistan). ICWC members from Kazakhstan, Tajikistan, Turkmenistan and Uzbekistan³⁴, as well as executive bodies (SIC ICWC, Secretariat of ICWC, BWO Amu Darya, BWO Syr Darya) and invited persons took part in those meetings.

Agenda. The main items on the agenda of the meetings were the **limits/quotas of water withdrawals and the operation regimes of reservoir cascades** in the basins of the Amu Darya and the Syr Darya (use of such quotas in the past period and their **approval** for the next period).

The information provided by BWO Amu Darya and BWO Syr Darya on the **results of water quota use** in the non-growing season 2022-2023 (84th meeting) and the growing season 2023 (85th meeting) was reviewed and taken into consideration. The members made decision that the Kazakh and Uzbek parties shall continue working "to have most updated data from hydrometeorological services on inflow to the Shardara reservoir" (84th and 85th meetings). "ICWC executive bodies shall strengthen work on application of new methods of forecasting the hydrological and water management situation..." (85th meeting).

For the growing season 2023 (84th meeting), the **limits/quotas of country water withdrawals** were approved and the proposed by BWO Amu Darya and BWO Syr Darya **forecast operation regimes for the reservoir cascades** were **taken into account**. "The Uzbek party requests the Tajik and Kazakh parties to speed up the process of reaching agreement on operation regime of the Bakhri Tojik reservoir for June-August 2023 by the end of May 2023."

For the non-growing season 2023-2024 (85th meeting), the **limits/quotas of country water withdrawals** were approved for river basins. "BWO Syr Darya shall monitor the operation regime of the Naryn-Syrdarya reservoir cascade and, in case of deviation from the forecast regime, inform immediately all the Parties."

The meetings recognized the work done by ICWC executive bodies on implementation of proposals and initiatives put forward by IFAS Founding States in Turkmenbashi as satisfactory. It was decided that ICWC members shall assist SIC ICWC in summarizing the outcomes of implementation of initiatives put forward at the Summit in Turkmenbashi and the fulfillment of the tasks set before ICWC as a result of the IFAS Summit in Dushanbe.

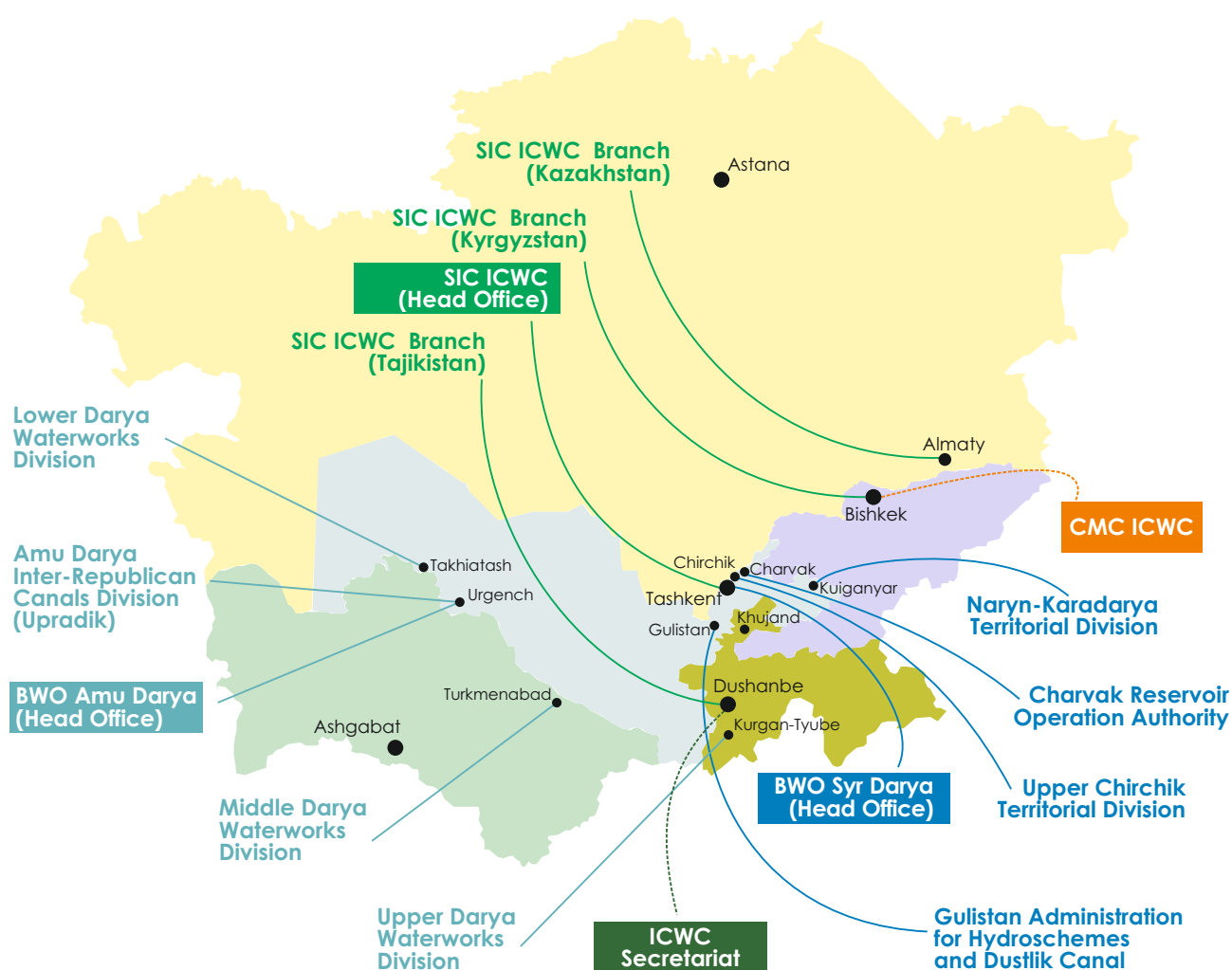
3.3.2. Activities of ICWC Executive Bodies in 2023

Executive bodies of ICWC

BWO Amu Darya	Responsible for routine management and distribution of water resources among the riparian states, timely and reliable delivery of water, according to the agreed limits, to users, and provision of sanitary and environmental flow for Prearalie and the Aral Sea. Established in September 1, 1987, with the headquarters in Urgench and four territorial divisions.
BWO Syr Darya	Responsible for routine management and distribution of water resources among the riparian states, timely and reliable delivery of water, according to the agreed limits, to users, and provision of sanitary and environmental flow for Prearalie and the Aral Sea. Established in September 1, 1987, with the headquarters in Tashkent and four territorial divisions.
ICWC Secretariat	Responsible for fulfillment of ICWC assignments, preparation, together with other executive bodies, of programs, measures and draft decisions for ICWC meetings, control over the flow of funds from ICWC founding states for financing of ICWC executive bodies (allocated for field operations, capital repairs, etc.), and coordination of international contacts. Established by the decision of the 6 th ICWC meeting on the 10 th of October 1993 in Dushanbe.
SIC ICWC	Responsible for backstopping of ICWC activities on regional and global stages. Contributes to transboundary water cooperation and sustainable water management in Central Asia through information support, training, networking, research, and expertise. Established on the 5 th of December 1992, with the headquarters in Tashkent and 3 branches.
CMC ICWC	Coordinates and implements technological policy in the field of metrological support to ICWC programs and decisions on the use, protection and accounting of water resources in sources and systems. Established on the 23 rd October 1999, with the headquarters in Bishkek.

³⁴ since the 68th meeting, representatives of the Kyrgyz Republic have not taken part in the ICWC activity

Location of Executive Bodies



BWO Amu Darya

Activity in 2023

BWO Amu Darya continued working on: (1) distribution of water among the states and control in real-time regime of observance of the water withdrawal limits/quotas approved at ICWC meetings (see [Water management situation in the Amu Darya and Syr Darya River Basins](#)); (2) improvement of the technical state and operation of waterworks facilities of BWO Amu Darya; (3) preparation of materials and participation in two ICWC meetings (see [ICWC meetings](#)). 15 meetings were held among the heads of water management organizations responsible for the river's lower reaches to address water allocation matters. Within the year, BWO Amu Darya maintained cooperation with water agencies of Tajikistan, Turkmenistan and Uzbekistan, hydrometeorological services, SIC ICWC, IWMI, and GIZ.

Source: BWO Amu Darya

BWO Syr Darya

Activity in 2023

BWO Syr Darya and its territorial branches kept maintaining waterworks facilities, including canals, gau-

ging stations, communication facilities, buildings and other structures under responsibility of the organization to ensure the sound use of water resources and trouble-free and sustainable supply of water to user-states.

Collective governance. BWO Syr Darya, in coordination with the CA members of ICWC and other stakeholders, have been developing the forecast operation schedules of the Naryn-Syrdarya reservoir cascade (NSRC) and water withdrawal limits for non-growing and growing seasons, and also coordinating the water allocation among water-user states in the Syr-Darya basin within the approved limits.

Representative of the MWRI (Ministry of Water Resources and Irrigation) of the Republic of Kazakhstan, Mr. M.E. Imangaliyev works as a deputy head in BWO Syr Darya and, according to his official duties, deals with the matters related to transboundary water management.

ICWC meetings. BWO Syr Darya took part in preparation of the 84th and 85th ICWC meetings. The reports on forecast and actual operation regimes of the Naryn Syrdarya cascade of reservoirs and the limits/quotas of country water withdrawals for: (1) the growing season 2023, with account of the expected water

availability (forecast and actual), and (2) the non-growing season 2022-2023 (actual) and 2023-2024 (forecast) were submitted for consideration and approval. BWO Syr Darya used in their reports the forecast and actual data from UzHydromet, CDC "Energy", Ministry of Water Management of Uzbekistan, and Ministry of Water Resources and Irrigation of Kazakhstan.

Repair and rehabilitation. Territorial branches of BWO Syr Darya performed the repair and rehabilitation of hydraulic structures, restoration of dams and mechanical cleaning of canals in line with the approved plan.

Reconstruction and modernization. As part of an investment program based on Presidential Resolution PP-465 of 30.12.2022 "On measures for development of social and production infrastructure of the Republic of Uzbekistan in 2023-2025", the construction work under Reconstruction and modernization of the Dustlik Canal headwork in Bekabad district of Tashkent Province, Stage 2 was completed and Stage 3 of this project was started.

ASBP-4. The financing is sought for implementation of the following project proposals included in the ASBP-4: (1) 1.3. "Provision of dam and large hydraulic structure safety in Central Asia: capacity building and regional cooperation"; (2) 1.6. "Automation of water distribution, accounting and monitoring in the Syr Darya Basin. Development of national water information systems as the basis for the regional information system."

Source: BWO Syr Darya

ICWC Secretariat

Activity in 2023

The ICWC Secretariat jointly with other executive bodies took part in organization of the two meetings of ICWC (see [ICWC meetings](#)), fulfillment of decisions and assignments of ICWC.

In the course of the year, the Secretariat took part in: (1) events of the UN 2023 Water Conference (March 22-24, New York, USA); (2) International Conference "Central Asia: towards sustainable future through strong regional institution" (Dushanbe, June 5-7); (3) Conference "Financial-economic instruments of water management improvement for sustainable development of Tajikistan" (Dushanbe, August 6); (4) practical training on development of a strategic plan for the Basin Women's Forum of the Kafarnigan River (August 7-9); (5) VI International Scientific and Practical Conference "The Role of women scientists in development of science, innovations and technologies", the proceedings of which contained three articles of the Secretariat's experts – "Use of APHRODITE and TRMM-3B42V7 PERSIAN-CDR products as the effective tools for climate change assessment", "Use

of SPI and SPEI indices for drought assessment in the context of climate change: Kafarnigan River basin of Central Tajikistan case study", and "Sustainable development and environmental consciousness in economy of Tajikistan" (Khujand, August 15-17); (6) professional development and experience sharing with Technoparks of Kazakhstan and "Scientific and Production Center for Ecological and Industrial Biotechnology" LLP (November); (7) UN Climate Change Conference/COP28 (Dubai, UAE, November 30-December 12); (8) training workshop "Capacity building and sharing of experience of ZRBA³⁵ staff and RBC representatives", within which the consideration was given to such topical issues, as management of basin organizations, technical aspects of basin maintenance and safety, marketing strategies (December 3-4).

The ICWC Secretariat maintains active cooperation with the Russian-Tajik Slavic University (RTSU), an interstate higher educational institution. In particular, it took part in the workshop "Strengthening the role of women and youth in water management in the Kafarnigan River Basin" and working meeting of representatives of the Basin Women's Forums of the Kafarnigan and Syr Darya Rivers (Sughd Province, February 27); roundtable "International significance of the initiatives of the President of Tajikistan to declare 2025 as the International Year of Glacier Preservation and to proclaim 21 March of each year as the World Day of Glaciers" (Dushanbe, May 26).

Source: ICWC Secretariat

Scientific-Information Center of ICWC

Activity in 2023

IFAS. SIC ICWC took part in anniversary events dedicated to the 30th anniversary of IFAS. In particular, SIC ICWC (1) held a roundtable in memory of Prof. V.A. Dukhovniy (online, August 16) and 2 training workshops for experts of BWO Syr Darya (Tashkent, February 23-24) and BWO Amu Darya (Urgench, September 28); (2) published an article "The role of ICWC in IFAS structure: 30 years of joint efforts for strengthening cooperation" in the Collection devoted to IFAS Anniversary; "Collection of selected agreements on water management in the Amu Darya and Syr Darya river basins", Tashkent, 2023; a newsletter "IFAS turns 30"; (3) participated in the roundtable (Tashkent, May 23) and international conference "Central Asia: Towards Sustainable Future through Strong Regional Institution" (Dushanbe, June 5-7).

SIC ICWC also took part in the activities of the working group on the improvement of institutional and legal framework of IFAS. For more details, please, refer to [Executive Committee of IFAS](#).

ICWC meetings. SIC jointly with other ICWC bodies contributed to preparation of two ICWC meetings

³⁵ Zerafshan River Basin Authority at the Ministry of Energy and Water Resources of Tajikistan

(84th and 85th), fulfillment of ICWC decisions and instructions. For more details, please, refer to [ICWC meetings](#).

SIC ICWC was involved in implementation of activities following the joint communique adopted at the Summit of the Heads of IFAS founder states (August 24, 2018) and the initiatives of Presidents of CA states and reported on SIC's contribution at ICWC meetings, starting from the 77th meeting, in part of automation of gauging stations in the Amu Darya and Syr Darya river basins, possible modalities of regional water-energy cooperation, development of methodologies and analytical materials on water conservation and measures for adaptation to climate change, organization of field expeditions and RS-based monitoring of the Aral Sea exposed bed, mechanisms of regional cooperation, water diplomacy and scientific cooperation, on participation in activities of working groups for implementation of ASBP-4 and improvement of IFAS.

Regional Information System on Land and Water in the Aral Sea Basin (CAWater-IS). In 2023, the IS was populated by the information on: (1) Amu Darya, Syr Darya, Kashkadarya, Surkhandarya, Chirchik, and Karadarya rivers for 2022-2023; (2) inflow to the Aral Sea and the Amu Darya delta for the growing season 2023 and the non-growing season 2022-2023; (3) analysis of the water situation in the Amu Darya and Syr Darya river basins for the growing season 2023 and non-growing season 2022-2023; (4) results of RS-based monitoring of water surface of the Eastern and Western parts of the Large Aral Sea, Small Aral Sea and lake systems of the Amu Darya River. See details in [Section 2](#).

A test version of the online interface was developed for the regional IS and connected to the GIS application of the Google Maps, which was used to visualize layers of reservoirs, weather stations in the Aral Sea basin and borders of states and regions in the CA countries. Databases for 34 reservoirs in the Aral Sea basin were developed using the Microsoft OneDrive application. It is planned to transfer the Regional IS to a new internet-platform (www.icwc-datatoolkit.net).

Analytics and assessments. Every ten days, analysis reports on water-related situation in the basins are posted on the SIC ICWC web-site in sections "Water-related situation in the Amu Darya River Basin" and "Water-related situation in the Syr Darya River Basin". The analytical reports on water-related situation in the Amu Darya and Syr Darya river basins were prepared for the growing season (2023) and non-growing season (2022-2023) and included an assessment of water allocation and operation regimes of reservoir hydrosystems, assessment and justification of water losses; key figures of these analytical reports were brought in line with the data presented by BWO Amu Darya and BWO Syr Darya (river water content, operation regimes of hydrosystems, water withdrawals), and comments to the BWO reports were produced.

Technical, information and expert assistance is rendered to national and regional organizations through timely provision on their request of relevant materials on key water issues: preparation of the meeting of the Council of Heads of IFAS Founder States, water-energy cooperation of the CA countries, development of cooperation between the CA countries and Afghanistan, construction of the Qosh-Tepa canal by Afghanistan in the north of the country, construction of the Rogun HPP, water conservation and measures for adaptation to climate change, mitigation of consequences of the Aral Sea catastrophe, environmental requirements for water protection, the draft Water Code of Uzbekistan and the draft Strategy for Water Management and Irrigation Sector Development in the Republic of Uzbekistan for 2024-2026, etc.

Information and publication activity. The Center continued providing support to ICWC by publishing and disseminating information materials and by further developing databases and the knowledge base, and regional web-resources, including the CA water and environment knowledge portal (CAWater-Info), ICWC, SIC ICWC, and EECCA NWO web-sites.

Information on the CAWater-Info web-portal exceeded 75 Gb, over 2 million visits were registered in 2022, and 1,456 new entries were added to the knowledge base. SIC has issued 31 publications and 52 information bulletins. See [Publications in 2023](#).

The web-page dedicated to scientific heritage of Prof. V. Dukhovnyi is updated on a regular basis (http://sic.icwc-aral.uz/scientific_heritage_of_prof_dukhovny.htm). A telegram channel was opened on "water-energy-food-ecosystem nexus" (<https://t.me/+Defxu-5Jq0RkNmVi>) and contains media publications and messages on water-ecological issues.

Research and development. SIC staff carried out research and developed tools in support of decision making as part of its research activity and within the framework of projects. In 2023, the work with the Innovative Development Agency of Uzbekistan was continued, 7 contracts for new projects were signed, 3 projects (under contracts with the UNDP Uzbekistan, UNRCCA, Potsdam Institute for Climate Impact Research) were implemented and 4 projects were launched (with the UNDP Turkmenistan, IHE Delft Institute for Water Education and OECD). A number of research efforts and assessments were conducted with the involvement of CA experts under umbrella of the Expert Platform on Water Security, Sustainable Development and Future Studies. Based on the research results, 13 articles, including 7 ones in international journals and 6 ones in Uzbekistan, were published by SIC staff. The research was carried out in the following key areas:

(1) Transboundary cooperation, international law and water diplomacy

Close cooperation has been established with the International Water Law Academy at Wuhan Univer-

sity (China)³⁶, the official launch of which took place on September 15-16, 2023. SIC ICWC presented at the conference "Charting a Path to Enhanced Transboundary Water Cooperation: Innovative Water Law to Tackle Hard Challenges and to Meet the UN Sustainable Development Goals" organized by the Academy. The policy brief "Transboundary Waters. The Role of Water Law in achieving the Sustainable Development Goals" was prepared by SIC ICWC in cooperation with the Academy, the Center for Water Law, Policy and Science of the University of Dundee (Scotland), and the Kazakh-German University, for its further presentation at the UN 2023 Water Conference.

The analytical-information materials were prepared for the national reports on SDG 6.5.2 (transboundary water cooperation), including the summary "Progress in Integrated Water Resources Management and Transboundary Water Cooperation in Central Asia (SDG 6.5)".

The legal and institutional frameworks for the operation, maintenance and construction of water infrastructure of interstate use in the Central Asia were carefully examined and measures for their improvement were proposed. The findings were published in an international journal³⁷.

The analytical work and expert discussions are underway on cooperation with Afghanistan on water, particularly with regard to construction of the Qosh-Tepa Canal. The exchange of views, among others, took place at the workshop "Water Issues between Central Asia and Afghanistan: evolution and contemporary challenges" (Institute for Advanced International Studies at the UWED, Tashkent, June 26); the expert roundtable "Water Disputes and Water Diplomacy between Afghanistan and its Neighbors" organized by the Konrad-Adenauer Foundation (Brussels, September 18).

(2) Water planning and regulation through improved data and tools

SIC assists the CA countries and international partners in regular monitoring of transboundary rivers and provision of early warning. As part of UNRCCA project "Drafting of Aral Sea Basin Transboundary Water Early Warning Bulletins", 4 e-bulletins containing the information on the current situation in the Syr Darya and Amu Darya basins and the forecast for next month were issued (May-June, June-July, July-August, August-September).

Practical tools were developed in support of decision making. In particular, the computer program "E-rules of Intra-Annual Flow Regulation in the Amu Darya River Basin" developed under contract with the Innovative Development Agency at the Ministry of Higher Education, Science and Innovation of Uzbekistan in 2022 was tested (February 23-25, May 5-8, Urgench) and adopted in BWO Amu Darya practices.

Monitoring of glacier condition in the Vakhsh and Zaravshan river basins was conducted to forecast the river water content using the MODSNOW tool. The comparison of results with the processed data from Landsat 8 showed the benefits of using the tool.

SIC has become a member of the Expert consultative council for the project "Water Efficient Allocation in a Central Asian Transboundary River Basin"/WE-ACT,³⁸ the kick-off meeting of which was held in Munich on January 26-27.

(3) Water-energy-land-ecosystem nexus

With the OECD support and involving experts from the CA countries, SIC ICWC prepared a discussion paper "Rethinking Institutional and Financial Mechanisms on Water and Energy Cooperation in Central Asia"³⁹. Jointly with the OECD and the EU, SIC ICWC organized a workshop "Innovative Solutions for Strengthening Regional Cooperation"⁴⁰ on water-energy management in the context of climate change (Dushanbe, June 7).

The issues of improvement of regional water and energy cooperation were summarized in proceedings of the roundtable in memory of Prof. Dukhovniy (August 16) and discussed at several meetings, in particular during the Eurasian Congress'23 "Eurasia of the Future: from Challenges to Solutions" (Sochi, June 8-9) and the SPECA Economic Forum (Baku, November 20-24).

(4) Adaptation of water and land use to the changing context

The Center continued the research on adaptation of a modern system for water and land resources monitoring and water balance (water requirement) modeling in the conditions of the Aral Sea region with a view of combating salinization and increasing land productivity⁴¹. In particular, based on field and desk studies, a map of hydromodule zoning of Ellikkala

³⁶ <https://iwla.whu.edu.cn/>

³⁷ Ziganshina D. (2023) Water infrastructure in Central Asia: legal and institutional frameworks. *Front. Clim.* 5:1284400. <https://doi.org/10.3389/fclim.2023.1284400>

³⁸ implemented as part of the Horizon Europe Program by 13 organizations under the overall coordination of the Technical University of Munich

³⁹ prepared within the Expert Platform on Water Security, Sustainable Development, and Future Studies by SIC ICWC and invited experts from the CA countries. This research was completed with the support of OECD as part of preparation for the project "Regional mechanisms for the low-carbon, climate-resilient transformation of the energy-water-land nexus in Central Asia" of the German International Climate Initiative (IKI)

⁴⁰ as part of the IFAS International Conference "Central Asia: Towards Sustainable Future through Strong Regional Institution" dedicated to the 30th anniversary of IFAS

⁴¹ as part of the project with the Innovative Development Agency at the Ministry of Higher Education, Science and Innovation of the Republic of Uzbekistan under the Japanese government program "SATREPS"

district (Republic of Karakalpakstan) was generated to include the changed climatic conditions. Work was continued in pilot site (Tik-Uzyak in Muynak district) to test the research version of the REQWAT model for calculation of crop water requirements and monitoring of cotton and sesame development and growth.

(5) Environmental issues

SIC ICWC completed the assessment of the conditions of the exposed bed of the Aral Sea and in the Aral Sea region as part of 2 expeditions⁴²: 1st spring expedition (April 26-May 19) covering the route 2,500 km long (Akpetki island system, Karateren Lake, Vozrozhdeniya (Renaissance) Island) and 2nd autumn expedition (September 20-October 12) on an area of 5,650 km², including the zone around the South Karakalpak collecting drain.



Source: <http://sic.icwc-aral.uz/releases/rus/435.htm>

In 2023, SIC ICWC studied the effectiveness of regulatory documents and programs applicable in the Republic of Uzbekistan to the water quality management and submitted proposals for their improvement based on international practices; completed an assessment of the state of hydrological and hydrochemical regimes of the Amu Darya River at the Kelif,

Kerki, Birata, Kipchak and Samanbai gauging stations; determined the mineral composition of water vs. prevalent chemical components and the chemical composition of water in the Amu Darya River at the above gauging stations; conducted an analysis of the level of pollution of the Amu Darya River at the Termez, Tuyamuyun (downstream of the dam), Kipchak, Samanbai, and Kzyl-Jar river sections and also of quantitative and qualitative indicators of CDW (collector-drainage water) and determined the impact caused by CDW from upper and middle reaches on water quality in the river; produced GIS maps that demonstrate the trends of changes in qualitative composition of water, expressed as water salinity and prevalent chemical components in the Amu Darya River for a multi-year period (1991-2022).

Thematic review "Biodiversity: major events in 2022 and activities of CA countries" was prepared.

(6) Water financing

SIC ICWC reviewed the world experience in irrigation water charging (policy brief 2), prepared an article titled "Payment for and policies on irrigation water use in developing countries", a thematic review "Public-private partnership in irrigation: what are the lessons for Central Asia?", and a discussion paper "Rethinking Institutional and Financial Mechanisms on Water and Energy Cooperation in Central Asia".

(7) Water, heritage and culture

SIC ICWC continued research in the sphere of water heritage in Central Asia. The possibilities of joint work were discussed at the meeting organized by the International Scientific Committee on Water and Heritage of the International Council for the Conservation of Monuments and Sites/ICOMOS (Delft, April 12). Reports on water heritage in CA and its role in regional water management were presented at the UN 2023 Water Conference (New York, March 23) and the side event "Water, Culture and Heritage:



Source: <http://sic.icwc-aral.uz/releases/eng/433.htm>

⁴² project "Empowering youth towards a brighter future through green and innovative development of the Aral Sea region" (MPHSTF for the Aral Sea region, UNDP, UNICEF, FAO), component 3.1. "Establishment of a data repository for evidence-based monitoring of the dried Aral Sea bed" (UNDP)

Connecting water management challenges with water related heritage" during the International Water Week (online, Amsterdam, November 8), etc.

Capacity building. The web-site developed by SIC on capacity building and training was further enriched and populated. SIC ICWC held: (1) jointly with the IHE Delft Institute for Water Education and Konrad Adenauer Foundation, **thematic session** "Water diplomacy: strengthening regional organizations in Central Asia"⁴³ as part of the international conference "Silk Road of Knowledge: Meeting of Science and Green Policy" (February 24); (2) IWMI, training workshops as part of IFAS 30th anniversary events: "Efficient allocation of water resources in the Syr Darya River Basin in the context of climate change" for BWO Syr Darya and water management organizations in the Fergana Valley (Tashkent, February 23-24) and "Efficient allocation of water resources in the Amu Darya River Basin in the context of climate change" for BWO Amu Darya (Urgench, September 28); (3) the Potsdam Institute for Climate Impact Research (PIK), a training workshop "From climate modelling to river flow: high-resolution scenarios and hydrology in Central Asia's climate change context" for climate experts from the CA countries (Tashkent, October 24-26); (4) SIC ICSD, trainings⁴⁴ on integration of climate change adaptation into water planning – 4 workshops for members of the coordination mechanism and decision-makers and 2 workshops for experts of city and district municipalities of Ashgabat and Dashoguz (Turkmenistan).

SIC ICWC experts (1) took the floor as guest lecturers at the IHE Institute of Water Education, KNU, Institute of Middle East, Central Asia and Caucasus Studies, University of St Andrews, etc.; (2) improved their qualifications by attending training workshops during the reporting period. See [Higher Education Institutions and Professional Development Centers](#).

Collaboration is maintained with the editorial boards of the "Central Asian Journal of Water Resources Research" and the electronic journal "Actuarial finance and accounting" (Tashkent State University of Economics).

Regional and international cooperation. SIC ICWC leadership and staff represented their organization at more than 35 national, regional and international conferences, workshops, roundtables. See [2023 Calendar of Events](#).

SIC ICWC actively **cooperated with the UN on water issues**. At the invitation of the President of the UNGA 77th session C.Körösi, Dinara Ziganshina made a report at the informal plenary meeting, the purpose of which was to hear the leading scientists on how to ensure the sustainable development in the modern context. On the threshold of the UN Water Conference, SIC ICWC has committed to work closely with the CA countries and other partners in order to develop



the evidence-based transboundary water cooperation. SIC ICWC took part in 7 events of the Conference.

Dr. Ziganshina continued her work as a vice-chair of the Implementation Committee under the UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention).

SIC ICWC as a **member of the WWC Board of Governors**⁴⁵ took part in the following events: (1) kick-off meeting of the 10th World Water Forum and WWC Board meetings: 82nd (Jakarta, Denpasar, Indonesia, February 15-16, 17-18); 83rd (online, June 15); 84th (Beijing, China, September 9-10); 85th (online, November 28); (2) work of the coordination group on strengthening intersectoral cooperation and diplomacy in the process of preparation to the 10th WWF and of the task force "Water for Human and Nature" within the triennial strategic framework of the Council.

SIC ICWC participated in the SPECA events, activities of EECCA NWO, INBO, IWRA. In 2023, Dr. Ziganshina was elected a member of the Organizing Committee and International Scientific Committee for preparation of the XVIII World Water Congress "Water for All:

⁴³ submitted the key findings and recommendations stated in the policy brief "Strengthening Transboundary Water Institutions in Central Asia"

⁴⁴ within the framework of the contract with the UNDP on the project "Developing a National Adaptation Planning Process in Turkmenistan" (UNDP, GCF)

⁴⁵ www.worldwatercouncil.org/en/board-mandate-2023-2025

Harmony between Humans and Nature" and made reports on: "Guaranteeing basic human rights – ensuring access to safe drinking water for all" at the 3rd Global Water Security Seminar and on "Implementation of national and international law – a look at the role and work of the Implementation Committee under the Water Convention" at special session SS-6-7 (Beijing, September 11-15). SIC ICWC has received a Certificate of Honor for the contribution to the preparation of the Congress as a member of the International Scientific Committee.

SIC ICWC (1) provided an expert support to **OECD** in assessing the investment environment in the water sector of Uzbekistan and in sharing the experience in similar assessments with Armenia and Georgia; (2) collaborated with the **ADB** staff and consultants on such issues as enhancing the water availability in the Amu Darya River (July 26), in the projects for climate change adaptation and risk mitigation (October 18), and also in water-energy modeling under the CAREC⁴⁶ Water Pillar (August 18, online); (3) discussed approaches to water-energy modeling with the **WB** for building future development scenarios (October 24, November 28); (4) took part in discussions of **EDB** publications on "Regulation of the Water and Energy Complex in Central Asia", "Transboundary Public-Private Partnerships", and "Efficient Irrigation and Water Conservation in Central Asia".

In the course of the year, a number of meetings were held with the leadership and staff of the French Development Agency/**AFD**, **GIZ** "Green Central Asia", **SDC** Blue Peace Project and other partners.

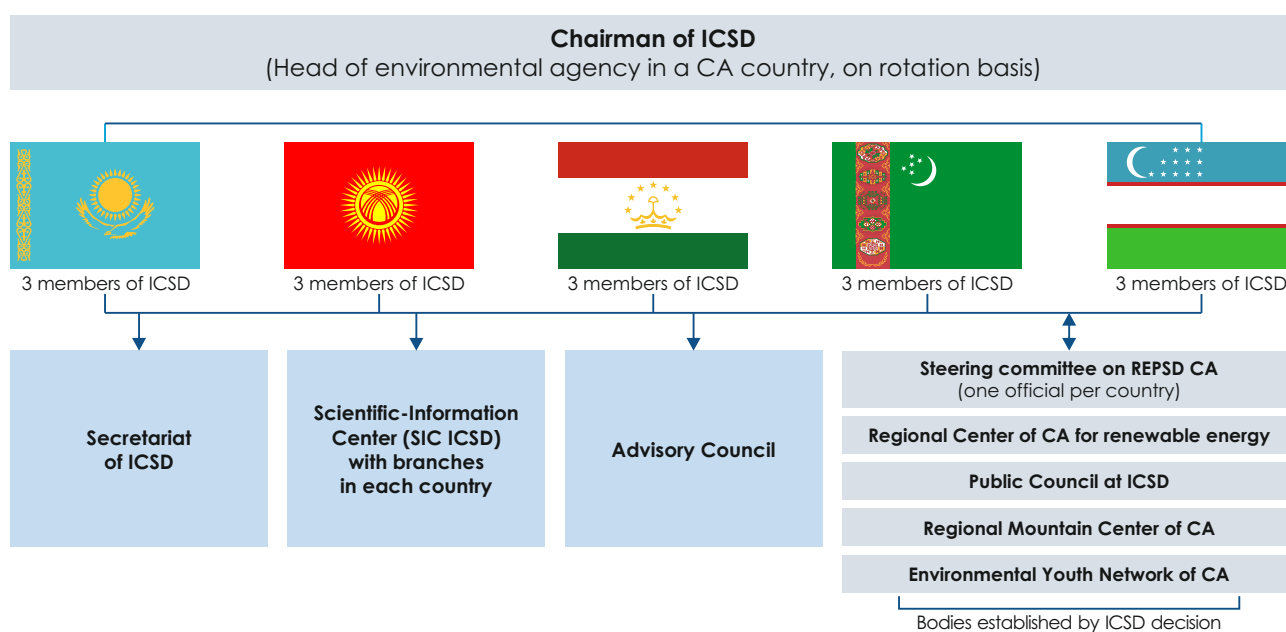
SIC continues issuing Water Yearbook: Central Asia and around the Globe as its contribution to coordination of water actions among countries and partners.

Media. Interviews were given to (1) the UN News Service on the need for sound consumption and international cooperation in the sphere of transboundary water protection (New York, March 24); (2) A. Shaydamov, representative of the National Research University "Higher School of Economics", regarding the research project "Study (assessment) of priorities and mechanisms for the implementation of sectoral policies in the countries of Central Asia and Transcaucasia in connection with the international donors agenda" (June 19); (3) the "Khabar" news agency (June 19); (4) V. Presnyakov, editor-in-chief of the online newspaper "Power and Industry of Russia" (June 20); (5) the French film company ARTE, which was shooting a documentary about the Syr Darya (July 1); (6) "Vzglyad.az" (<https://t.me/Vzglyad>) on the "Water crisis in Central Asia: how to deal with it in Uzbekistan?" (August 21).

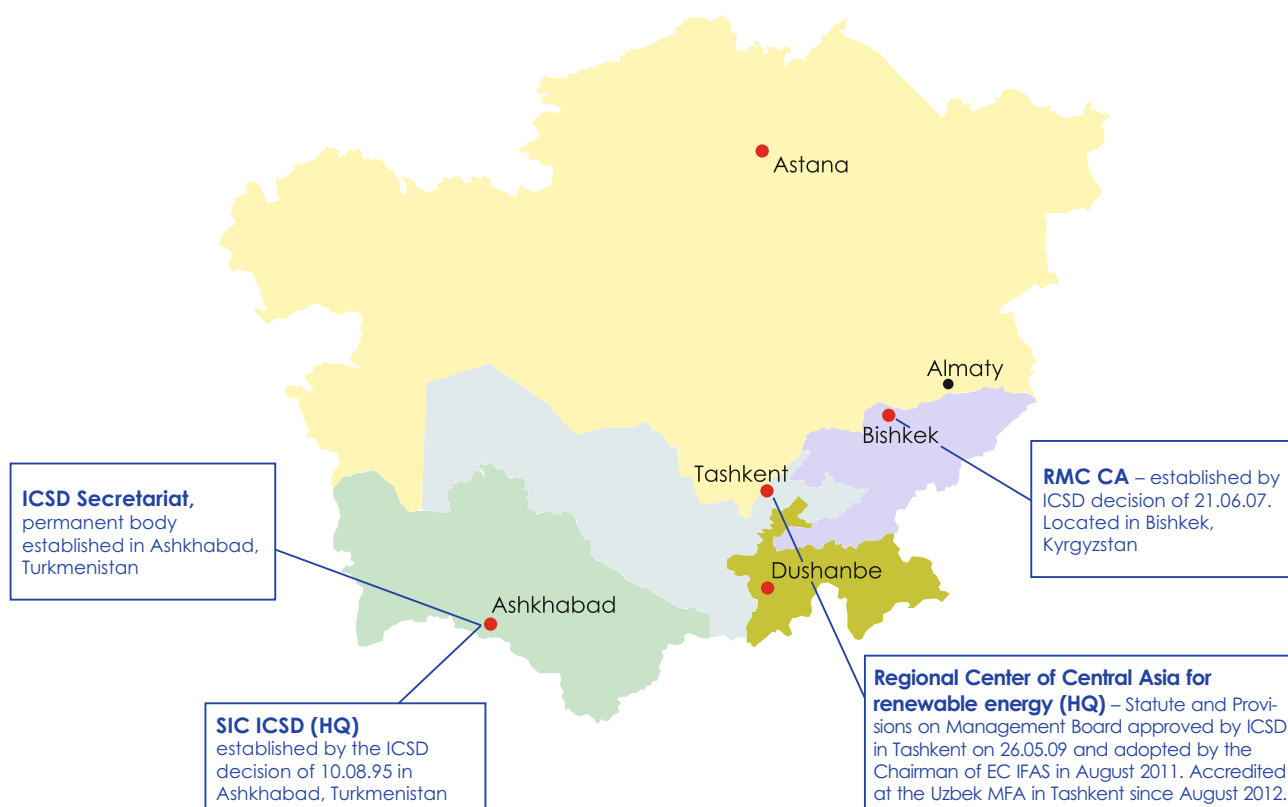
Source: SIC ICWC

3.4. ICSD of Central Asia

The Interstate Commission on Sustainable Development (ICSD) was established by the decision of the Interstate Council for the Aral Sea Basin in 1993. It is entrusted with the mission of coordination and management of regional cooperation in the field of environmental protection and sustainable development of the CA states. The organizational setup of ICSD and location of its executive bodies are shown in the figures below.



⁴⁶ under the ADB Regional Technical Assistance TA-9977: "Central Asia Regional Economic Cooperation (CAREC): Water Pillar Development"



The Republic of Kazakhstan is the chair country of ICSD for the period of 2022-2024 (March 18, 2022, online).

Activity in 2023

The primary task is to strengthen the legal, institutional and technical framework of ICSD and its bodies with the purpose of implementation of regional programs and projects, organization of monitoring in the area of environmental protection in CA, interaction with other regional and international organizations for the sustainable development in the region.

Regional Environmental Program for Sustainable Development (REP4SD CA) in Central Asia. The REP4SD CA⁴⁷ was approved at the meeting of the IFAS Board on February 22, 2022 in Dushanbe. The Program is based on the ongoing in CA processes aimed at achieving SDGs, implementing UN environmental conventions, developing green economy and adapting to climate change. The framework character of the Program is to promote regional environmental cooperation in CA until 2030.

REP4SD includes over 40 agreed **regional cooperation priorities** grouped by environmental SDGs. The **Roadmap** of REP4SD developed jointly with UNEP ranks the priorities of implementation. **High priority actions** include: (1) development⁴⁸ of indicators to fully measure implementation of the Roadmap and the Regional strategy on adaptation to climate change, with account of specifics of CA ecosystems (**the work was completed**); (2) preparation and implementation of regional programs and projects funded by GEF, GCF and other donors⁴⁹; (3) issues under the education-related SDG 4. There is a need for standardization of education disciplines in the area of ecology and sustainable development, for preparation of highly skilled professionals, and building human and institutional capacities of relevant ministries and agencies; (4) implementation of SDG 15 and UN conventions on desertification and biodiversity.⁵⁰ The **medium-term priorities** of REP4SD include: (1) "SDG 17. Development of guidelines and standards to establish a strategic environmental assessment on environmental protection and adaptation to climate change" and "SDG 6: Ensuring the effectiveness of water quality monitoring in ASB". ICSD intends to cooperate closely with UNECE on these issues; (2) moni-

⁴⁷ this was preceded by huge efforts, starting from the ministerial conference "Environment for Europe" in 1992, where ICSD took voluntary obligations to update the Regional program as part of the Batumi green economy initiative. See more in 2021 Water Yearbook, Section 3.4, http://www.cawater-info.net/yearbook/index_e.htm

⁴⁸ implemented jointly with GIZ as part of the Integrative and Climate-Sensitive Land Use in Central Asia (ILUCA) and Green Central Asia

⁴⁹ climate financing for the region can be attracted also through international organizations. The Memorandum of Cooperation with GIZ was updated to give it a higher status and to integrate more regional environmental programs of this organization. A special agreement was signed in addition to the existing MoC between SIC ICSD and CAREC for involving this important regional organization in the implementation of REP4SD as a co-implementer

⁵⁰ The following projects are supported by the ICSD decision: Integrated natural resources management in drought-prone and salt-affected agricultural production landscapes in Central Asia and Turkey/CACILM-2 (FAO/GEF); Ramsar Regional Initiative for Central Asia (Ramsar Convention Secretariat, CAREC) and other UNDP projects implemented in Turkmenistan and Uzbekistan

toring of glaciers and climate risks, as well as development of green economy principles.

ICSD meetings. The 3rd meeting of ICSD Advisory Board (September 4-5) and the regular ICSD meeting (September 5) were held in Astana. The report on ICSD 2022-2024 action plan was presented and the item on Regional Waste Management Center in Dushanbe, the tasks of which are to build capacities of ICSD and its bodies, contribute to cooperation on waste management between environmental authorities in the region, was addressed.

Director of Uzbek branch of SIC ICSD raised the need for deeper study of indigenous knowledge and practices of the CA countries and their role for sustainable development and for the regional youth ecological forum to ensure active engagement of CA youth in addressing environmental issues and exchange of knowledge and experience.

Improvement of the institutional and legal framework of IFAS. In 2023, ICSD took part in 3 meetings. Proposals on the institutional improvement of IFAS and ICSD were drafted and submitted to the Executive Committee of IFAS.

Activities. The Head Office of SIC and Secretariat of ICSD: (1) collected materials on environmental policies (strategies and programs) and laws of Turkmenistan; (2) developed a draft law "On amendments and additions to the Law of Turkmenistan on Wastes"; (3) rendered assistance in the development of measures for implementation of the Paris Climate Agreement and took part in a working meeting where the progress in the greenhouse gas inventory process, training on inventory methods and preparation of educational materials for FAO trainings were discussed; (4) contributed to the Turkmenistan's national report on implementation of the UN Desertification Convention.

ICSD also was involved in the project "Regional Climate Action Transparency Hub for Central Asia"/RECATH (ICAT/GHGMI/CAREC) and provided information support to the project "Conservation and sustainable management of land resources and high nature value ecosystems in the Aral Sea basin for multiple benefits" (UNDP/GEF). ICSD jointly with (1) SIC ICWC have been developing special training programs and educational materials and conducting trainings for different target groups within the framework of the project "Developing a National Adaptation Planning Process in Turkmenistan" (UNDP, GCF); (2) the Secretariat of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal have been implementing the project "Institutional strengthening for implementation of the Basel Convention in Turkmenistan".

The Tajik branch of SIC ICSD maintained cooperation with other branches on establishment of the Regional Waste Management Center for Central Asia, prepared additions to the draft Charter of the Center, and made proposals to the draft Regional Climate Change Adaptation Strategy in Central Asia.

The Uzbek branch of SIC ICSD prepared: (1) for the Ministry of Ecology, Environmental Protection and Climate Change of Uzbekistan the Roadmap to activate the environmental sectoral dialogue and cooperation between Uzbekistan and PRC and proposals on the projects "Green Mahalla", "Green Belt", and "Green Corridor" based on experience of USA, Korea, Singapore, China, and Kazakhstan; (2) proposals on organization of a study tour to a salt lake located in the desert in the south-east California (USA) and dried up as a result of mismanagement to learn from lessons and efforts made to mitigate the ecological catastrophe; on construction of artificial water bodies in the Aral Sea basin jointly with Kazakhstan; on organization of a scientific expedition to the Aral Sea, jointly with Kazakhstan, to study plantations of desert plants on the exposed and in the Aral Sea region (on saline land), wild animals and bird species, etc.

Representatives of the head office and branches took part in the following events: (1) roundtable dedicated to the 30th anniversary of IFAS (Tashkent, May 23); (2) Central Asian Climate Change Conference/CACCC-2023 (Dushanbe, May 16-17); (3) annual meeting "Advancing CGIAR science⁵¹ on water systems" (Tashkent, May 31); (4) regional workshop "Capacity building of ICSD and its institutions in environmental protection and sustainable development"⁵² (Dushanbe, June 5-7); (5) roundtable "Regional cooperation in Central Asia on environmental protection, climate change and sustainable development"⁵³ (Astana, June 1-3); (6) Second High-Level Dialogue on Climate Change and Resilience in Central Asia "Early warning systems for climate resilience" (Bishkek, September 21-22); (7) Regional Forum "Central Asia on the Way to the 28th Conference of the Parties to the UNFCCC: 5 Countries-1 Region-1 Vote" (Astana, November 7); (8) 6th meeting of the Kazakhstan-Uzbekistan Joint Working Group on Environmental Protection and Water Quality in the Syr Darya River Basin (Astana, 14 December), etc.

Publications. ICSD published the following articles: (1) "Sustainable water management in Turkmenistan in the context of climate change" and "On the Regional Environmental Program for Sustainable Development in Central Asia (REP4SD CA)", collection of articles "Regional cooperation in Central Asia" dedicated to the 30th anniversary of IFAS; (2) "Combating land degradation in Turkmenistan" and "Landscape desertification" in the international scientific-practical journal "Problems of desert development"; (3) "Global concept of land degradation assessment" in

⁵¹ advisory group on international agricultural research

⁵² as part of the international conference "Central Asia: Towards Sustainable Future through Strong Regional Institution" dedicated to the 30th anniversary of IFAS

⁵³ within the framework of the 3rd International Congress "ECOJER: Carbon Neutrality Pathways"

the journal "Ecological culture and environmental protection".

The "Collection of regulations on environmental protection in the Republic of Tajikistan" and the book "Glaciers of the Republic of Tajikistan – the main water source in Central Asia" were published as well.

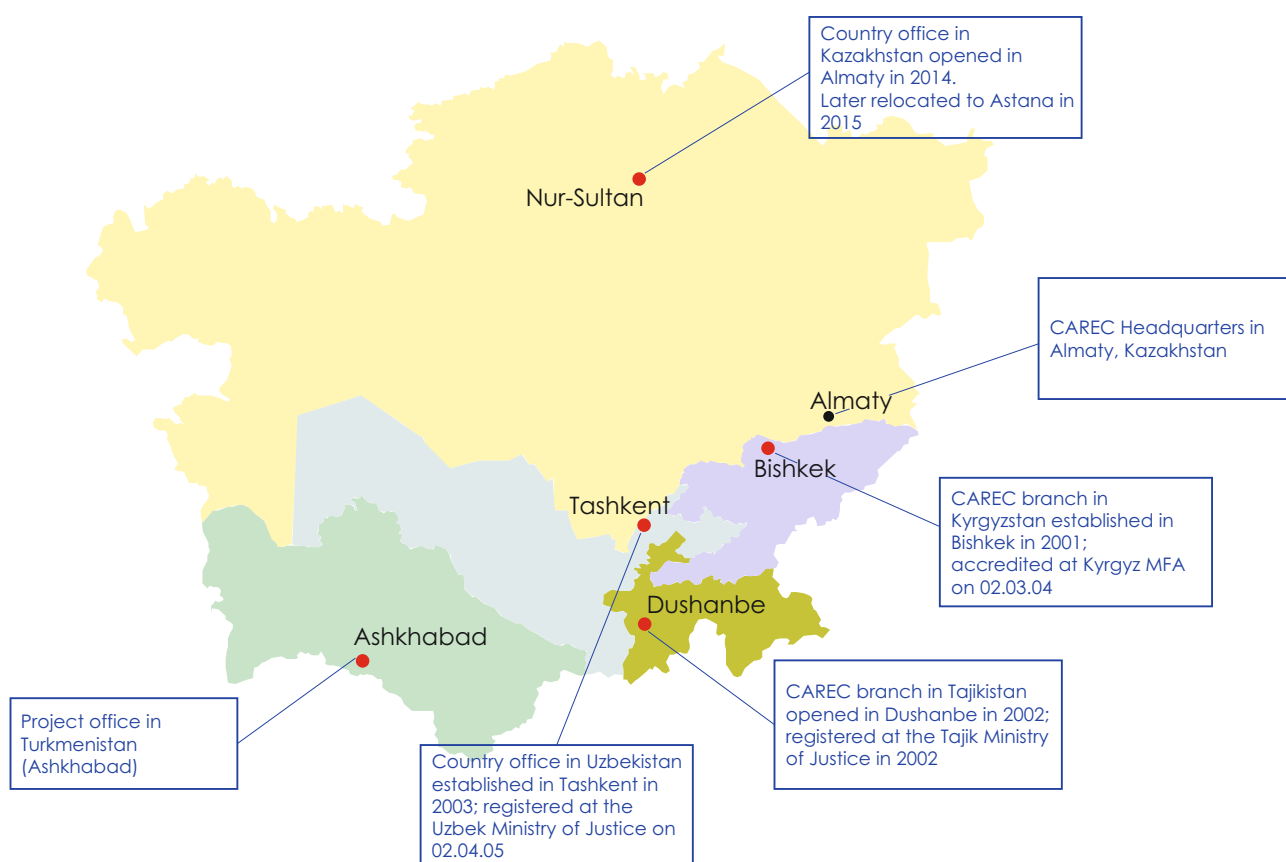
The research monograph "Legal aspects of climate protection in Turkmenistan" was prepared for publication.

Source: ICSD Secretariat and SIC ICSD, <https://www.mkurca.org/>, <http://www.filial-nic-mkur.tj/index.php/ru/>

3.5. Regional Environmental Center for Central Asia



CAREC is an independent, non-profit, nonpolitical international organization, which assists the Central Asian governments, regional and international stakeholders and partners in addressing their environmental and sustainable development issues in Central Asia. The headquarters is located in Almaty, with the country offices operational in 5 Central Asian states.



Activity in 2023

Key accomplishments of the year: (1) CAREC continued its flagship initiative on preparation of regional statements from countries and civil society and on organization of the CA pavilion at the Conference of the Parties to the UNFCCC; (2) CAREC was nominated to support the process of preparation of the national report to the UN Convention to Combat Desertification in Tajikistan; (3) national forest inventory was completed in Kyrgyzstan, including the update of the quantitative and qualitative data on all forests of the Republic and development of a new forest map; (4) testing of all reporting systems (JRC, Trends Earth and FAO-

WOCAT) was completed in Turkmenistan in the process of preparation of the national report on combating desertification; (5) micro-, small and medium-sized enterprises (MSMEs) engaged in processing of agricultural products, as well as local financial institutions became new beneficiaries of CAREC projects. The creation of MSME support centers was started in Fergana and Bukhara (Uzbekistan), Sughd and Gorno-Badakhshan regions (Tajikistan); (6) initiatives of women in the water sector in Central Asia were presented at sessions of the UN 2023 Water Conference; (7) Days of the Amu Darya River and the Syr Darya River were held (in Nukus, Dashoguz, Nurek, Daroot-Korgon, Khiva) and brought together 328 participants, inhabitants and

users of ecosystems in these river basins; (8) 15 projects (9 regional and 6 national) continued. See the list of projects in the [Annual Report 2023](#), Annex 1.

Capacity building. CAREC developed the following: (1) training modules on legislative changes, new strategic priorities of Turkmenistan and financial sustainability of small basin council operation for re-qualification and mandatory certification of specialists; (2) courses on water management for the Academy of Civil Service at the President of Turkmenistan and on IWRM for Ashgabat Agricultural University and Dashoguz Agricultural Institute; (3) training course, educational materials and a syllabus on “Water Diplomacy and International Water Law”.

In 2023, 74 events were organized for more than 712 participants, in particular 26 training workshops on: application of the biosafety clearing house (KR); processing of forest resources database and mapping of land and forest resources of the Kyrgyz Republic; application of data collection and analysis tools for preparation of National Inventory Reports (NIR), emission reduction and climate change adaptation reports; climate change for media representatives; water diplomacy skills, international water law and women's parti-

cipation in water diplomacy; green investments, climate finance and financial instruments, etc. For more details, see [Annual Report 2023](#), Annex 2.

Supported the Second Climate Eco-Festival “Let's Save the Earth Together” in Turkmenistan for fostering nature care among youth (Ashgabat, October 15).

Events. (1) 5th Central Asian Climate Change Conference (CACCC-2023) “Climate Change and Development” (Dushanbe, May 16-17); (2) meetings of representatives of MFAs and parliaments of CA countries on climate change and strengthening of inter-sectoral cooperation (Tashkent, April 19; Dubai, December 2); (3) 13th Central Asian Leadership Program (CALP)⁵⁴ on environment for sustainable development (Almaty, September 18-22); (4) meetings for preparation of participation of CA countries at COP28 with the purpose to formulate a regional position, prepare a regional statement from states, non-governmental sector and youth. As part of the Conference, CAREC supported the Central Asian Pavilion “5 countries-1 region-1 vote”, which was visited by more than 3,000 people (Dubai, November 30-December 10), etc. For more details on CAREC events in 2023, see <https://carececo.org/main/news/>.



Central Asian Pavilion “5 countries-1 region-1 vote”

Publications. As part of implemented projects, CAREC issued 31 publications (expert reports, manuals, video records, glossaries, handbooks) and 13 training materials. For more details, see <https://carececo.org/main/ckh/publications/>

and [Annual Report 2023](#), Annexes 3 and 4.

Source: www.carececo.org/main/, [Annual Report 2023](#)

⁵⁴ CAREC's flagship initiative, undertaken since 2010, designed to improve leadership capacity of young and mid-level managers of various environmental agencies and focused on addressing the multiple sustainable development challenges in the region

