

WATER YEARBOOK:

CENTRAL ASIA AND AROUND THE GLOBE

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List of Abbreviations

ADB Asian Development Bank

AIIB Asian Infrastructure Investment Bank

ALRI Agency of Land Reclamation and Irrigation at the Government of Tajikistan

ASBmm Aral Sea Basin model

ASBP Action Program to assist the countries of the Aral Sea Basin

BISA Basin Irrigation System Administration

BRI Belt and Road Initiative
BWO Basin Water Organization

CAREC Regional Environmental Centre for Central Asia

CDW Collector-drainage water

CIS Commonwealth of Independent States

CMC ICWC Coordination Metrology Center of ICWC

CSTO Collective Security Treaty Organization

EBRD European Bank for Reconstruction and Development

EC IFAS Executive Committee of IFAS
ECOSOC UN Economic and Social Council
ED IFAS Executive Directorate of IFAS

EECCA Eastern Europe, Caucasus, and Central Asia

EECCA NWO Network of the Eastern Europe, Caucasus, and Central Asia Water

Management Organizations

EIA Environmental impact assessment

ESCAP Economic and Social Commission for Asia and the Pacific

EU European Union

FAO Food and Agriculture Organization of the United Nations

GDP Gross Domestic Product
GEF Global Environment Facility

GIS Geographic Information System

GIZ German Agency for International Cooperation (Gesellschaft für Internationale

Zusammenarbeit)

GWP Global Water Partnership

ICID International Commission on Irrigation and Drainage

ICSD Interstate Commission for Sustainable Development of Central Asia

IDB Islamic Development Bank

IFAS International Fund for Saving the Aral Sea
INBO International Network of Basin Organizations

ISA Irrigation System Administration

IWACInternational Water Assessment CenterIWRMIntegrated Water Resource ManagementIWRAInternational Water Resources Association

JICA Japan International Cooperation Agency

MAWR Ministry of Agriculture and Water Resources (Uzbekistan, Turkmenistan)

NASA National Aeronautics and Space Administration

NGO Non-governmental organization

NHMS National Hydrometeorological Services

OECD Organization for Economic Cooperation and Development

OIC Organization of Islamic Cooperation

OSCE Organization for Security and Co-operation in Europe

RCH Regional Center of Hydrology at EC IFAS SCO Shanghai Cooperation Organization

SDC Swiss Agency for Development and Cooperation(agency for international

cooperation of the Federal Department of Foreign Affairs)

SDG Sustainable Development Goals

SIC ICWC Scientific-Information Center of the Interstate Commission for Water

Coordination

SIWI Stockholm International Water Institute

SPECA Special Program for the Central Asian countries

UN United Nations

UNDP United Nations Development Program
UNEP United Nations Environment Program

UNESCO United Nations Educational, Scientific and Cultural Organization

UNFCCC United Nations Framework Convention on Climate Change

UNGA UN General Assembly

UNHCR United Nations High Commissioner for Refugees

UNICEF United Nations International Children's Emergency Fund
UNIDO United Nations Industrial Development Organization

UNRCCA United Nations Regional Center for Preventive Diplomacy for Central Asia

UNSC UN Security Council

UPRADIK Amu Darya Inter-Republican Canals Division

USAID United State Agency for International Development

WB World Bank

WCA Water Consumer Association
WHO World Health Organization

WMO World Meteorological Organization

WWC World Water Council

Preface

The 2018 edition of the Water Yearbook: Central Asia and Around the Globe continues providing a summary of key developments and events of the year. The structure of the second edition has remained the same but some of 16 sections have been changed based on the feedback received. There are hopes to include more pieces of analytics in future editions. We counts on our international partners and regional experts to help with this.

The year 2018 was full of events in the region and all over the world. After a nearly ten-year break, the Summit of the Heads of IFAS Founder-State was held on the 24th of August in Turkmenbashi, Turkmenistan. The Presidents have addressed important environmental, water and socio-economic issues in the Aral Sea Basin ("XII Summit of the Heads of IFAS Founder-State").



The May's dust and salt storm, one of the worst in the region's history, has taken a huge amount of dust and salt from the dried ground, including from the dried bed of the Aral Sea, to the air and once again reminded us on a need for increased efforts to mitigate the Aral Sea catastrophe ("Dust and Salt Storm"). The information about quite complicated water management situation due to low-water conditions in 2018 and the country actions in response, as well as other key developments can be found in "Water Management Situation in the Aral Sea Basin" and "Key Water Developments in the Countries of Central Asia". One may note here the formation of the Ministry of Water Management in Uzbekistan in 2018 as renewed recognition of the importance of sustainable water resources management in the country (see "Uzbekistan"). The activity of regional organizations in 2018 is presented in "IFAS and other regional organizations in Central Asia".

As part of bilateral cooperation between the states in the region (see "<u>Bilateral Water Cooperation between the States in Central Asia</u>"), particular attention can be paid to the state visits of the President of Uzbekistan to Tajikistan (March 9-10), the President of Tajikistan to Uzbekistan (17-18 August) and the President of Kyrgyzstan to Turkmenistan (August 23). Those high-level visits have got many urgent matters and specifically that related to better water use off the ground.

Cooperation of the CA countries with the United Nations was also intensive and fruitful in 2018. The countries initiated four UN General Assembly resolutions on regional cooperation, water and environment (see "General Assembly"). The International Decade for Action "Water for Sustainable Development, 2018-2028" as initiated by Tajikistan was started in March 22, 2018. Kazakhstan successfully completed its presidency in the UN Security Council ("Security Council") and held the Eighth session of the Meeting of the Parties to the UNECE Water Convention on 10-12 October in Astana (see "Economic Commission for Europe"). Uzbekistan launched the UN Multi-Partner Human Security Trust Fund for the Aral Sea Region on the 27th of November ("UN Development Program").

The Yearbook also covers activities of international water organizations and initiatives (in similarly-named section) and of development partners in Central Asia ("<u>Activity of International Partners in Central Asia</u>").

Section "<u>Water Education</u>" provides a summary of activities undertaken by higher education institutions, professional development centers and trainings over 2018. Here, fragmentation of the organized trainings and lack of structured information and access to learning materials are still very topical.

Section "<u>Science and Innovations</u>" was updated with a new subsection - "Online Information Products and Services" – about new databases, knowledge bases and information portals.

The information on all continents and major river basins can be found in "Key Water Developments in the World".

"<u>Thematic Reviews</u>" summarize major facts, events and reports on climate change ("<u>Climate Change</u>") and sustainable development goals ("<u>Sustainable Development Goals</u>: <u>Tracking the Change</u>")

<u>Progress</u>"). The progress towards SDG 6 ("<u>Progress towards SDG 6 on Water</u>") and SDG 15 in part of restoration of forests and combatting desertification ("<u>Focus on SDG 15</u>: <u>Restoring Forests and Combating Desertification</u>") were brought into focus. In 2018, the countries of Central Asia and the Caucasus joined the global initiative on restoration of degraded and deforested land (the Bonn Challenge) and Uzbekistan increased its afforestation efforts on the dried bed of the Aral Sea. Particular attention is paid to one of major events of the past year – the signature of the Convention on the Legal Status of the Caspian Sea during the Fifth Caspian Summit, which was held on the 12th of August in Aktau ("<u>Caspian Sea</u>: <u>Special Legal Status</u>").

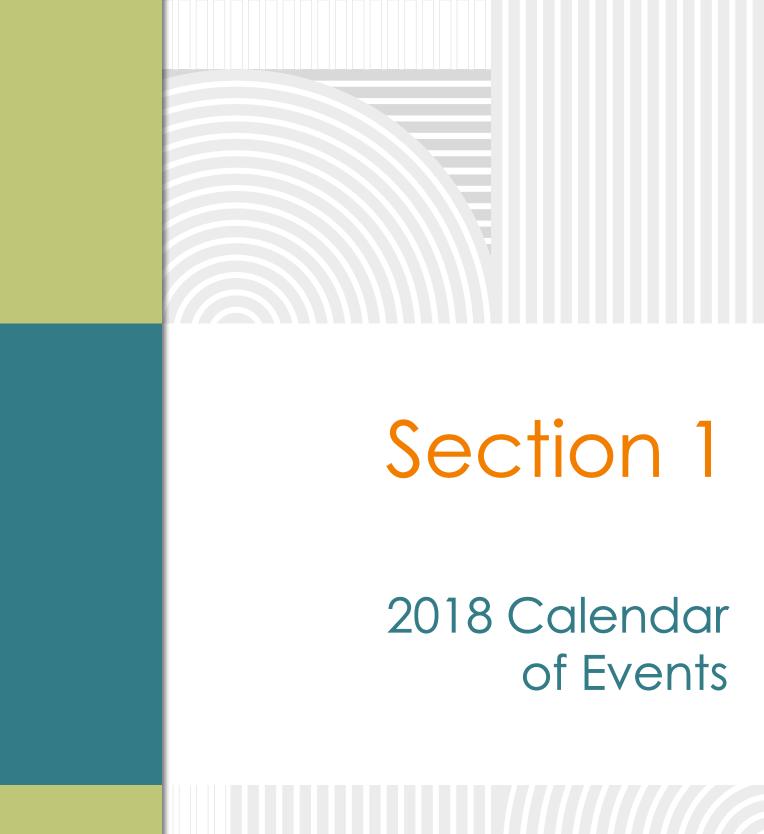
As in the previous edition, the 2018 Water Yearbook is finalized by the list of key publications, risks 2019 and the calendar of events for 2019.

In concluding, the authors would like to thank all individuals and organizations that contributed to this second edition in response to our request for information.

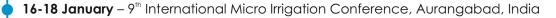
Professor Viktor A. Dukhovniy

May 2019





January



24-25 January – Central Asia Climate Change Conference "Building path towards sustainable regional adaptation", Almaty, Kazakhstan

30 January – Seventeenth Steering Committee Meeting of the National Policy Dialogue on Integrated Water Resources Management in Kyrgyzstan

February



- **6-7 February** 7th meeting of the EU-CA Working Group on Environment and Climate Change, Brussels, Belgium
- 12-15 February International Conference on Snow Hydrology, Heidelberg, Germany
- 14-15 February Central Asian Civil Society Forum in preparation for the 8th World Water Forum, Dushanbe, Tajikistan
- **21 February** Seminar briefing of the forthcoming 2nd Central Asian International Environmental Forum on "Strengthening cooperation in the field of environment and sustainable development and in Central Asia", Tashkent, Uzbekistan
- **26 February** Fourth meeting of the Working Group on preparation and holding of the 2nd Central Asian International Environmental Forum on "Strengthening cooperation in the field of environment and sustainable development and in Central Asia", Tashkent, Uzbekistan
- 27 February Uzbek-Finnish Business Forum "Development of Business Relations between Finland and Uzbekistan", Tashkent, Uzbekistan

March

- 1-2 March Regional Forum on Sustainable Development for the UNECE Region, Geneva, Switzerland
- **7 March** Joint Meeting of the Implementation Committee under the UNECE Water Convention and the Compliance Committee under the Protocol on Water and Health, Geneva, Switzerland
- **8-9 March** Ninth meeting of the Implementation Committee under the UNECE Water Convention, Geneva, Switzerland
- 14 March International Day of Action for Rivers
- 15 March First Consultation Meeting of the Heads of States of Central Asia, Astana, Kazakhstan
- 17 March Extraordinary General Assembly of the World Water Council, Brazil
- 18-23 March 8th World Water Forum, Brasilia, Brazil

- 19-20 March 2nd International Conference on Natural Hazards and Disaster Management, Bali, Indonesia
- 🔶 **22 March** World Water Day
- **22 March** High-level Event to Launch the International Decade for Action, "Water for Sustainable Development", 2018–2028, New York, USA
- **24-25 March** International Scientific and Practical Conference "Water for Sustainable Development of Central Asia" devoted to the launching of the International Decade for Action "Water for Sustainable Development", 2018-2028, Dushanbe, Tajikistan
- 26 March Aral Sea Day
- 26-27 March International High-Level Conference on Afghanistan: Peace Process, Security Cooperation and Regional Connectivity, Tashkent, Uzbekistan

April

- 4-6 April Almaty Regional Energy Security Conference, Almaty, Kazakhstan
- **15 April** International conference "A drop of water a grain of gold", Ashgabat, Turkmenistan
- 18-19 April Regional Meeting on Sharing Knowledge on National Policy Dialogue on IWRM and Transboundary Cooperation in Central Asia, Almaty, Kazakhstan
 - **24-25 April** Regional Consultation Workshop "Towards the Strategic Guidance on Climate Change and Adaptation in the Central Asian Mountains", Almaty, Kazakhstan
- **25-26 April** Meeting of the Advisory Group of Experts on Transboundary Water Diplomacy, Paris, France
- 30 April 10 May Bonn Climate Change Conference, Bonn, Germany

May

- **2-4 May** 8th ICID Asian Regional Conference, Katmandu, Nepal
- **7-9 May** WMO Global Conference "Prosperity through Hydrological Services", Geneva, Switzerland
- 9-10 May Coordination Meeting of The Executive Committee of IFAS with International Partners on Development of Programs related to Solving the Problems of the Aral Sea Basin, Ashgabat, Turkmenistan
 - **10-11 May** Subregional Workshop "Research for climate change policies: Migration, remittances and climate resilience in Tajikistan", Dushanbe, Tajikistan
- **14 May** International Conference "Uzbekistan and China: prospects for joint implementation of the "One Belt, One Road" initiative", Tashkent, Uzbekistan

- 15 May Round table on best practices in the field of impact of legal regulation, sanctions and other issues related to water legislation under the "National Framework Convention on Water Management and Integrated Water Resources Management" of the EU program "Sustainable Management of Water Resources in Rural Areas in Uzbekistan", Tashkent, Uzbekistan
- **16-17 May** First Meeting of the Regional Working Group on the Development of a New Action Program to Assist the Countries of the Aral Sea Basin and the Improvement of Legal Framework of IFAS, Ashgabat, Turkmenistan
- **17-18 May** Astana Economic Forum (Global Challenges Summit). High-level panel session "Water and peace. How to Promote Transboundary Water Cooperation?", Astana, Kazakhstan
- 22 May International Day of Biological Diversity
- **22-23 May** International Scientific and Practical Conference "Improving efficiency, reliability and security of hydraulic facilities", Tashkent, Uzbekistan
- **28 May** Knowledge Fair "EcovsEgo" as part of the celebration of the 10th anniversary of successful work of the GEF Small Grants Program in Uzbekistan, Tashkent, Uzbekistan
- **28-30 May** Joint Meeting of Working Groups on IWRM and on Monitoring and Assessment under the UNECE Water Convention, Geneva, Switzerland
- 30-31 May Regional Meeting on Dam Safety Cooperation in Central Asia, Almaty, Kazakhstan

June

- 5 June World Environment Day
- **5-8 June** Central Asian International Environmental Forum "Strengthening cooperation on environment and sustainable development in Central Asia", Tashkent, Uzbekistan
- **7-8 June** International Conference "Joint efforts to mitigate consequences of the Aral Sea catastrophe: new approaches, innovative solutions, investments", Tashkent, Uzbekistan
- **7-8 June** 8th meeting of the EU-CA Working Group on Environment and Climate Change, Tashkent, Uzbekistan
 - **20-22 June** International High-Level Conference on the International Decade for Action "Water for Sustainable Development" 2018-2028, Dushanbe, Tajikistan
- 21-22 June Ministerial Roundtable on Forest Landscape Restoration and the Bonn Challenge
 in the Caucasus and Central Asia, Astana, Kazakhstan
- 24 June-7July Training on Climate Modelling, Almaty, Kazakhstan
- 25-26 June Regional hands-on training on equitable access to water and sanitation, Geneva, Switzerland

July

- 9-18 July High-level Political Forum on Sustainable Development, New York, USA
- **12-13 July** Regional meeting on strengthening intersectoral collaboration on water resources management, Almaty, Kazakhstan
- 23 July Round table "Actual problems of the transboundary Ural River Basin. Possible solutions. Best practices of transboundary basin ecosystems management", Uralsk, Kazakhstan

August

- 1 August Earth Overshoot Day
- 12 August Caspian Sea Day
- **12 August** 5th Summit of Heads of the Caspian Littoral States, Aktau, Kazakhstan
- **12-17 August** ICID 69th IEC Meeting and International Conference, Saskatoon Saskatchewan, Canada
- 22 August 74th Meeting of ICWC, Turkmenbashi, Turkmenistan
- 22 August ICSD Working Meeting, Turkmenbashi, Turkmenistan
 - 23 August IFAS Board Meeting, Turkmenbashi, Turkmenistan
 - 24 August Summit of Heads of the Founder States of IFAS, Turkmenbashi, Turkmenistan
- **24-25 August** 29th UN-Water Meeting, Stockholm, Sweden
 - 26-31 August 28th World Water Week "Water, Ecosystems, and Human Development", Stockholm, Sweden
- 29-30 August Global Landscape Forum, Nairobi, Kenya

September

- **3-4 September** North and Central Asia Forum on Implementation of the Sustainable Development Goals, Tbilisi, Georgia
- 🔶 **4-9 September** Bangkok Climate Change Conference, Bangkok, Thailand
- 🔶 **16-21 September** IWA World Water Congress & Exhibition, Tokio, Japan
 - 18-22 September 9th Central Asian Leadership Program (CALP) on Environment for Sustainable Development, Almaty, Kazakhstan
 - 18 September Water Monitoring Day
 - **19 September** International Round Table "Uzbekistan and Germany: Cooperation in the Field of Security and Sustainable Development in Central Asia", Tashkent, Uzbekistan

- **26-27 September** International Seminar "Assessment and Risk Management of Water Resources in the Basins of Transboundary Rivers of Central Asia" dedicated to the International Decade for Action "Water for Sustainable Development", 2018-2028, Dushanbe, Tajikistan
- **28 September** First International Conference "Caspian Sea in the 21st Century: Cooperation and Security", Astana, Kazakhstan

October

- **2-4 October** Asia Water Forum 2018: Information, Innovation, and Technology, Manila, Philippines
- **3-6 October** Global Conference on Water Security for Agriculture and Natural Resources, Hyderabad, India
- **9 October** Round table with representatives of international organizations, managers and employees of the Ministries and Agencies of the Republic of Uzbekistan on establishment of the Saline Soils Center in Prearalie, Tashkent, Uzbekistan
- **9-11 October** International Symposium on Water and Land Resources in Central Asia under the CAWa project, Almaty, Kazakhstan
- **9-11 October** Eighth session of the Meeting of the Parties to the UNECE Water Convention, Astana, Kazakhstan
- 12 October International Conference "Influence of Natural Global Changes and Technological Conditions on Hydrogeological, Engineering, Geological and Geoecological Processes: Analysis of Results and Forecasting of Development", Tashkent, Uzbekistan
- 15-19 October International Forum on "Innovative approaches to achieve sustainable management and social stability in the Aral Sea Basin" combined with the regional training on "Diversification and modeling of crops and ensuring food security based on climate change in Central Asia", Samarkand, Uzbekistan
- 17-19 October 10th International Soil Science Congress on "Environment and Soil Resources Conservation", Almaty, Kazakhstan
 - 🕨 **17-19 October** 6th Asia-Pacific Climate Change Adaptation Forum, Fukushima, Japan
 - 17-20 October 16th European "EUROPE-INBO 2018" Conference, Seville, Spain
- 23-26 October World Mountain Forum 2018, "Mountains in a Changing World: Strengthening Partnerships and Pathways towards a Thriving Mountain Future", Bishkek, Kyrgyzstan
- **29-30 October** Meeting of the Central Asian Expert Forum, Tashkent, Samarkand, Uzbekistan
- 30 October-1 November Conference "Social science knowledge and sustainable agricultural development along the Silk Road", Tashkent, Uzbekistan

November

6-7 November – Conference of the EECCA NWO "Water for Land Reclamation, Economic Sectors and Natural Environment in the context of Climate Change", Tashkent, Uzbekistan

- 6-8 November 15th Session of the Climate Forum on the seasonal forecasts of the CIS countries (NEACC-15), Moscow, Russia
- **7-22 November** 14th Meeting of the Conference of the Parties on the Convention on Biological Diversity; Ninth meeting of the Conference of the Parties serving as the meeting of the Parties to the Cartagena Protocol on Biosafety; Third meeting of the Conference of the Parties serving as the meeting of the Parties to the Nagoya Protocol on Access and Benefitsharing, Sharm El-Sheikh, Egypt
- **21 November** International Round Table "Environmental Challenges in the Region of Central Asia at the Present Stage and in the Future: the Search for Joint Solutions", Tashkent, Uzbekistan
- **22-23 November** Seminar on Water Cooperation and Second Technical Dialogue "Water Diplomacy in Central Asia", Tashkent, Uzbekistan
- 26 November First Small Basin Councils Forum of Central Asia and Afghanistan, Bishkek, Kyrgyzstan
- **30 November** Uzbekistan South Korea workshop on "Uzbekistan South Korea: vision of the future", Tashkent, Uzbekistan
- 30 November Regular meeting of the Public Council "On the application of international criteria and approaches to the conservation of biodiversity species and territories under the obligations of Uzbekistan on the implementation of the Conventions, Agreements and Memoranda", Tashkent, Uzbekistan

December

- **3-14 December** 24th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP24), Katowice, Poland
- **4-5 December** Sanitation Workshop under the Protocol on Water and Health, Geneva, Switzerland
- **4-6 December** Tenth Meeting of the Conference of the Parties to the Convention on the Transboundary Effects of Industrial Accidents, Geneva, Switzerland
- 6-7 December Water Diplomacy: Workshop on Experience Exchange, Almaty, Kazakhstan
- **14 December** Round Table "Prospects for Water Management Development in Uzbekistan", Tashkent, Uzbekistan
- **20 December** International Scientific and Practical Conference "Water Security in Central Asia: Problems and Solutions", Taraz, Kazakhstan

Major Events in Central Asian Countries

More detailed information on major events held in Central Asian countries in 2018 is provided below.

Central Asia Climate Change Conference "Building Path Towards Sustainable Regional Adaptation", 24-25 January, Almaty



The <u>Central Asia Climate Change Conference</u> "Building path towards sustainable regional adaptation" was organized by CAREC with the participation of IFAS and the World Bank under the framework of the Climate Adaptation and Mitigation Program for Aral Sea Basin (<u>CAMP4ASB</u>).

The Conference aimed at fostering regional dialogue, knowledge and information exchange on adaptation to climate change, exploring opportunities for joint actions between international, regional and national stakeholders, and building a common vision towards climate resilient future.



It brought together more than 250 representatives from governmental and non-governmental agencies, academia, development partners, multilateral development banks, civil society and business companies that work in the area of climate change adaptation in the region and beyond.

The Conference was composed of five sessions: (i) POLICY: Global Climate Regime – implications for Central Asia; (ii) SCIENCE: how climate change affects Central Asia; (iii) BEST PRACTICES AND TECHNOLOGIES: Global challenges – local actions; (iv) FINANCE: global funding sources and local mechanisms of climate investments; and (v) INFORMATION SERVICES: communication and specificity of climate-related information delivery.

The agenda also included parallel thematic sessions: Sustainable economic development in the context of climate change – recommendations from current global and regional initiatives;

Gender, youth and civil society; Innovative approaches to climate change adaptation and mitigation in Central Asia.

In addition, the regional photo contest "50 images of climate change" winners have been awarded at the conference framework.

The contest has been held in the following categories: (i) The role of woman in the sustainable use of natural resources in changing climate conditions; (ii) The climate change effects on the state of glaciers and water resources in Central Asia; (iii) The climate change impact on the welfare of the rural population in Central Asia.

Based on the results of the Conference, key messages were formulated and formed the basis for the thematic concept and program of the upcoming CACCC 2019.



Second Central Asian International Environmental Forum "Strengthening Cooperation on Environment and Sustainable Development in Central Asia", June 5-8, Tashkent



The <u>Second Central Asian International Environmental Forum</u> "Strengthening Cooperation on Environment and Sustainable Development in Central Asia" was jointly organized by the State Committee of the Republic of Uzbekistan for Ecology and CAREC, and was supported by the Government of the Republic of Uzbekistan and a number of international organizations such as UNDP, USAID, WB, EU, and OSCE.

The aim of the forum was to contribute to strengthening the dialogue between the government agencies, academia, the international community for development, civil society and business structures in Central Asia on environmental issues and the formation of joint solutions for sustainable development of the region.

The forum has brought together around 400 participants, including representatives of more than 50 international and regional organizations, academia, civil society, business structures, as well as leading experts and analysts in the field of environmental protection and sustainable development, representatives of environmental and water authorities of Central Asian countries, Afghanistan and a number of European countries.

The forum was organized in the format of plenary and thematic sessions, in the following thematic areas: (i) <u>Biodiversity conservation</u> and the development of a network of protected natural areas; (ii) <u>Integrated management of solid domestic wastes</u>; (iii) <u>Renewable energy sources and energy efficiency</u>; (iv) Regional water cooperation in Central Asia.

The statements were presented in the context of the following aspects: legal and institutional framework, research activities, best practices and development of public-private partnerships.

The Special Session on Regional Water Cooperation was held together with the



international conference "Joint actions to mitigate the consequences of the Aral catastrophe: new approaches, innovative solutions, investments". The session covered mechanisms for ensuring sustainable financing for infrastructure, capacity development at the regional and national levels, cooperation with the private sector, strengthening integrated and transboundary water management and improving food security through sustainable use of water resources. During the session, an opening ceremony of the first Central Asian CAREC-TIIAME Innovations and Scientific Research Cluster was held.

The forum was accompanied by the Specialized Exhibition "Green Ecology Technologies Central Asia - GETCA-2018". It brought together 38 manufacturers and developers in the field of green technologies from Armenia, Hungary, Germany, Italy, China, the Republic of Korea, Russia, Uzbekistan, France, the Czech Republic, Latvia and Switzerland, as well as local companies dealing with issues of sorting, recycling of solid household waste, development of renewable energy sources. Visitors got acquainted with innovative solutions in the field of energy efficiency and energy saving, utilization and processing of production and consumption waste. A Business Forum on Clean Technologies was held alongside the Exhibition, where investors had the opportunity to meet with the exhibitors and establish contacts.

CAIEF-2018 featured 7 parallel events: (i) Regional meeting "Intersectoral investments to foster water, energy and food security"; (ii) Special Meeting "Partnership for Sustainable



Development"; (iii) Meeting of the Regional Steering Committee of Smart Waters project; (iv) Workshop on Mainstreaming Technology in Climate Action Plans (CTCN, CAREC); (v) CAREC Public Advisory Council (PAC) meeting; (vi) Special session "Youth of Central Asia"; and (vii) Meeting of the EU-CA Working Group on environment and climate change.

The <u>key messages of the forum</u> concerned the set of issues on (i) conservation of biodiversity and development of protected natural areas; (ii) integrated management of solid domestic waste; and (iii) renewable energy sources and energy efficiency.

At the end of the Forum, young representatives read out the appeal of the Central Asian youth for joint environmental actions. The participants once again supported the idea of launching the "Environment for Central Asia" process, which is intended to serve as a tool for coordination of sustainable development actions in the region. The proposal to launch the process was supported by the Central Asian countries within the framework of the First Central Asian International Environmental Forum (June 5-7, 2017, Ashgabat).

Source: https://carececo.org/news/CAIEF-2018 report_eng.pdf

International Conference "Joint Actions to Mitigate the Consequences of the Aral Catastrophe: New Approaches, Innovative Solutions, Investments", 7-8 June, Tashkent

The International <u>Conference</u> "Joint actions to mitigate the consequences of the Aral catastrophe: new approaches, innovative solutions, investments" was held by the Ecological Movement of Uzbekistan, MFA of Uzbekistan, Ministry of Innovative Development of the Republic of Uzbekistan, Academy of Sciences of the Republic of Uzbekistan in partnership with IFAS, CAREC, representative offices of UNDP, UNESCO, WB, GIZ, OSCE, JSC UZVTORCVETMET, Standing Committee on Scientific and Technological cooperation of the OIS (COMSTECH), and other organizations.



The objectives of the International Conference were the alignment of practical orientation and actions of the countries of the region under IFAS to address the problems in Prearalie; analysis and evaluation of implemented programs to mitigate the consequences of the Aral catastrophe; determination of ways of cooperation in the implementation of projects aimed at improving environmental and socio-economic situation in the Aral Sea region, and also attraction of investments for their implementation.

The participants included the deputies of parliaments and heads of ministries and agencies of the Central Asian countries, experts of the government and administrative bodies of the country, national and foreign scientists and professionals, representatives of IFAS, CAREC,

GIZ, UN agencies, COMSTECH, Global Water Partnership, the World Bank and other leading financial institutions and international organizations, foreign companies interested in investing projects to improve environmental situation in Priaralie, as well as foreign and national NGOs, business and media representatives.

The Conference Program included a trip to Prearalie, 3 plenary sessions, and parallel sessions.

Activities of IFAS, the new Program of Action on Aral Sea Basin Problems – ASBP-4, issues related to deepening of cooperation among the countries in the region on joint use of transboundary water resources in Central Asia, economic and social development of the Aral Sea zone and the creation of the Multi-Partner Human Security Trust Fund for the Aral Sea region in Uzbekistan under the auspices of the United Nations, creation and development of protec-ted natural areas in Prearalie, activation of afforestation on the dried bottom of the Aral Sea, as well as attraction of young specialists to ecological problems of the Aral Sea were discussed at the plenary and sectional meetings.

The main thematic areas of the Conference included: (i) Practical actions at a new stage within IFAS – on the way to the IFAS Summit; (ii) Investments, innovations and technologies to reduce the negative impact of the Aral Sea desiccation on the health of population and environment of the Central Asian region; (iii) Coordination of afforestation work on the dried bed of the Aral Sea and in Prearalie; (iv) Regional water cooperation in Central Asia; (v) Meeting of the Central Asia and South Caucasus Consortium of Agricultural universities for Development; and (vi) Search for new solutions for ecosystem conservation in Prearalie.

As part of the Conference, an exhibition was organized to demonstrate projects, scientific developments, and results of experimental and scientific-practical work in the area of agriculture, water and forestry, new technologies of water saving and soil fertility improvement, models of modern equipment for the water sector, as well as methodological and scientific publications.

Main conclusions of the Conference:

i. A Memorandum of Cooperation was signed between the UNDP Country Office in Uzbekistan and the State Forestry Committee on coordination of afforestation activities on the dried bed of the Aral Sea, as well as a Memorandum of Cooperation between the Environmental Movement of Uzbekistan and the Organization of Islamic Cooperation COMSTEC in the field of environmental protection.

ii. Taking into account that the use of transboundary water resources should become an important aspect of water cooperation in Central Asia in the future, the Conference supported the initiative on conclusion of international conventions on rational and equitable use of water resources in the Amu Darya and Syr Darya basins developed by UNRCCA.

iii. The conference approved a package of 20 project proposals aiming to improve environmental and socio-economic situation in Priaralie and attract investments in the amount of \$1 billion and €12.7 million. These include projects on sustainable water resource management, strengthening of technical capacities of water management organizations, development of sustainable agriculture, expansion of forest plantations on the dried seabed, fixation of drift sands, development of protected natural zones, establishment of a Human Security Fund for Prearalie, etc.

iv. At the Conference, the <u>Tashkent resolution</u> was adopted, as well as a collection of conference materials was prepared for sending to the parliaments and governments of Central Asia and foreign countries, international and public organizations.

During their trip to the Prearalie zone, the participants visited Nukus, Muynak and the "Cemetery of Ships" on the exposed bed of the Aral Sea and met with local residents and representatives of state bodies and community organizations. They also visited the Karakalpakstan State Museum of Arts named after I.V. Savitsky.





High-level International Conference of the International Decade for Action "Water for Sustainable Development, 2018-2028", 20-21 June, Dushanbe

The High-level <u>International Conference</u> of the International Decade for Action "Water for Sustainable Development, 2018-2028" was organized at the initiative of the Government of the Republic of Tajikistan in cooperation with UN and a number of partners.

The main objective of the Conference is to discuss further steps towards the implementation of the Action Plan of the International Decade at the global, regional and national levels and to make concrete recommendations on the implementation of water-related SDGs.

The Conference gathered representatives of 120 countries and more than 40 international and regional organizations. More than 1,500 dignitaries and politicians, scientists and experts from different regions of the world representing governments, various UN institutions, international and regional organizations, financial institutions, academic institutions, civil society and the private sector discussed the most pressing water issues during three days.

The Program included the pre-conference and side events, plenary sessions, a number of thematic and interactive sessions, and an exhibition.

On 19 June, the following pre-conference events were organized:

<u>Children's Water Forum</u>, which included the round table with girls and boys "Children's Voices", discussion panel on early childhood development on issues related to water, hygiene and sanitation "Best Investments in the World", and an exhibition "Youth Innovation Challenge".

Women Water Forum: 'Bridging Voices to Actions', which focused on three areas: (i) National and international commitments to the International Decade for Action "Water for Sustainable Development, 2018-2028" and involvement of women; (ii) Capacity-building measures, integrating knowledge, science and technology to support women's leadership and participation; (iii) Building partnerships to achieve SDG6, with a particular focus on investing in women for water management.

The Smart Waters: Water and Science for Sustainable Future event addressed access to



data, integrity of research, knowledge sharing, learning process, innovative tools for science and education, strengthening partnerships in the academic community. Alongside the event, an exhibition "Water Technologies and Education" was organized.

The program of the <u>Water and Climate Dialogue</u> consisted of sessions of various formats: official statements, panel sessions, as well as roundtable discussion, focusing on the cryosphere, water, hazards, communities, partnerships in a changing climate, and addressing SDG.

The results of discussions at the preconference events were presented at the plenary session of the Conference, and summarized conclusions were included in the final report.

The opening ceremony of the International Conference was addressed by the President of the Republic of Tajikistan H.E. Mr. Emomali Rahmon, the Under-Secretary-General for Economic and Social Affairs, H.E. Mr. Liu Zhenmin, the President of Turkmenistan, H.E. Mr. Gurbanguli Berdimuhamedov, the President of the Islamic Republic of Pakistan, H.E. Mr. Mamnoon Hussain, the Chief Executive of the Islamic Republic of Afghanistan, H.E. Mr. Abdullah Abdullah, and a number of other high-level representatives of Member States and units of the world organization.

3 plenary sessions and 12 action panels were held on: Drinking Water and Sanitation; Integrated Water Resource Management, Water Efficiency and Productivity; Water Quality and Ecosystems; Capacity Building including Improving Knowledge and Education; Water-related Communication, Advocacy and Networking; Water-related Partnerships for Action; Water, Food, Energy and Environment Nexus; Climate Change and Disaster Risk Reduction; Water Sustainability in Cities and

Human Settlements; Financing, Investment and Resilient Infrastructure; Transboundary Cooperation and Water Diplomacy; Water for Vulnerable People, including Refugees and Migrants.

Within the framework of the Conference, an international exhibition "Water for Sustainable Development" was organized. It demonstrated best practices and scientific achievements in the field of water resources. International and regional organizations, national ministries and departments, public organizations, private companies, academic and research institutions took part in the exhibition.

The Conference produced the Final Declaration "Promoting Action and Policy Dialogue". It stresses the need to manage in an integrated and sustainable manner water resources, water, food, energy and environment nexus, including by promoting the concept of circular economy and other relevant solutions. The Declaration prioritizes water diplomacy and transboundary cooperation in line with the applicable principles of international law by strengthening dialogue, developing capacity, with the engagement of women.

It also notes the intention of the Government of Tajikistan to hold Water Action Decade Conferences in Dushanbe on a biennial basis and to keep organizing them in an open and inclusive manner. The theme of the second Conference on the Decade for Action on Water will be "Stimulating action on water and partnership at the local, national, regional and global levels". The Secretariat of the First International Conference is to collect all proposals and initiatives for action and partnerships in a document entitled "Call for Action and Partnership".

See also Section "<u>International Decade for Action "Water for Sustainable Development,</u> 2018-2028".

Source: https://wsdconf2018.org



World Mountain Forum 2018 – 'Mountains in a Changing World'. Strengthening Partnerships and Pathways towards a Thriving Mountain Future, 23-26 October, Bishkek



World Mountain Forum 2018

The first major international decision to address the issue of mountains and mountain regions was made at the United Nations Conference on Environment and Development (UNCED) held in June 1992 in Rio de Janeiro, Brazil.

Chapter 13 of the main UNCED outcome, Agenda 21, is dedicated to mountains. The outcome document of the UN Conference on Sustainable Development (Rio+20) in 2012, 'The Future We Want', also includes specific references to mountains. SDG 15 addresses the need to protect, restore and promote

sustainable use of terrestrial ecosystems, including mountains.

The Mountain Partnership was founded by the Governments of Italy and Switzerland, FAO, and UNEP and launched in 2002 at the World Summit for Sustainable Development (WSSD) in Johannesburg, South Africa.

Under the overall framework of the Mountain Partnership, the 1^{st} WMF took place in October 2011 in Switzerland, 2^{nd} – in May 2014 in Peru, 3^{rd} – in October 2016 in Uganda, and 4^{th} – in October 2018 in Kyrgyzstan.

WMF 2018 was co-organized by the University of Central Asia (UCA) and the government of the Kyrgyz Republic, under the auspices of the SDC's Sustainable Mountain Development for Global Change Program.

About 300 participants from 40 countries of the world attended the Forum, including representatives of mountain countries of Europe, Latin and North America, Africa, Asia and the Pacific and Central Asia.

With the overall objective of advancing the sustainable mountain development (SMD) agenda, discussions over the three days were organized around plenary sessions, parallel thematic tracks, poster presentations and featured focus events.

The overall goal of WMF 2018 is to develop together a scenario for a thriving mountain future and to sketch out some pathways towards it.

More specifically, the WMF 2018 aims to build and strengthen partnerships beyond traditional alliances for advancing the SMD agenda; develop and prioritize strategic and innovative pathways towards a more sustainable mountain future; position and reference the SMD agenda in regional and global debates (e.g. SDG, Paris Accord); explore investment opportunities and challenges for mountain areas; collect and share best practices and innovation solutions, both regionally and globally, and to strengthen initiatives to form and develop reliable regional mountain alliances.

The Forum is structured around four core thematic issues:

- T-1: Climate Change Affecting Water and Energy in Mountain Areas
- T-2: Poverty, Food Systems and Agrobiodiversity
- T-3: Resilience and Transformation in Mountain Communities and Ecosystems
- T-4: Investing in Mountains Securing the Future

The thematic discussions on the first two days addressed three overarching topics: current trends and dynamics; pathways towards a sustainable mountain future; and partnerships and alliances to advance SMD. On the final day, participants reviewed and consolidated messages for inclusion in the conference outcome document titled 'A Call for Mountains,' and convened in sessions exploring innovative partnerships and best practices in mobilization and financing for SMD.

The Forum was preceded by the Youth Mountain Forum, held on 22 October 2018 by the University of Central Asia and UNICEF in Kyrgyzstan, that brought together students and young professionals interested in climate change and SMD to serve as Youth Ambassadors during WMF 2018.

The same day, a two-day Mountain EXPO was launched at the Kyrgyz National Museum of Fine Arts. It was organized by the University of Central Asia with the support of UNDP in Kyrgyzstan. The exhibition provided a platform for sharing experience and demonstration of best mountain development practices in a "knowledge fair" format. The Mountain EXPO also presented two photo shows: "The Himalayas on Lokta Paper" by Jake Norton, Mountain Partnership Goodwill Ambassador, and "The Agony of a Glacier", the "SMArt" art project of the Swiss Foundation for the Sustainable Development of Mountain Regions (FDDM).

The next World Mountain Forum is planned for 2020.

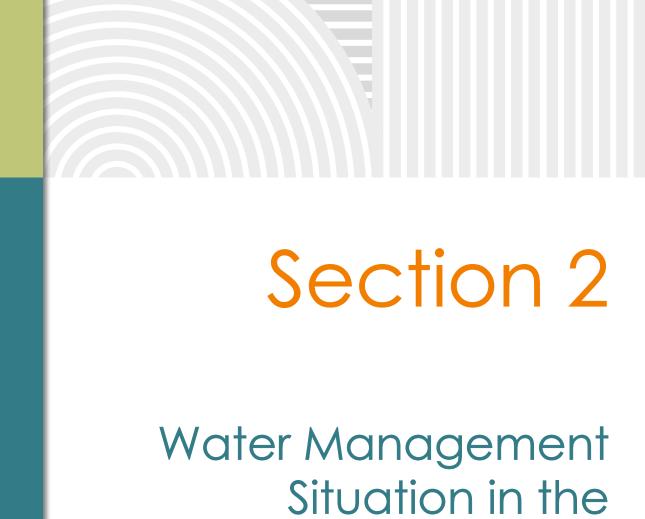
Source: https://sdg.iisd.org/events/world-mountain-forum-2018-mountains-in-a-changing-world/











Aral Sea Basin

2.1. Water Management Situation in the Basins of the Amu Darya and the Syr Darya

Water Resources

In 2018, the total annual flow in the basins of the Amu Darya and the Syr Darya was 97.5 km³ or 83% of average annual flow.

Amu Darya Basin

The annual flow in the basin, including the Amu Darya and its tributaries, as well as the Zarafshan River, was 62.2 km³, of which 47.9 km³ in the Amu Darya (at the nominal Kerki section). The water content of the Amu Darya in the monitoring section upstream of the Garagumdarya was: 55.3% of the norm in the first quarter of the growing season, with the subsequent consequences for water users at the beginning of the season; 80.3% for the growing season as a whole; and, 72.7% in the first half of the nongrowing season 2018-2019.

As of 1st of January 2018, the total water accumulation in the Nurek and Tuyamuyun reservoirs was 13.7 km³.

Syr Darya Basin

The annual flow in the basin, including the rivers Naryn, Karadarya, and Chirchik and small rivers, amounted to 35.3 km³, of which 22.4 km³ of inflow to three reservoirs – Toktogul, Andizhan, and Charvak – along the Syr Darya.

As of 1st of January 2018, the total water accumulation by reservoirs in the basin was 25.123 km³, including 19.881 km³ in the key reservoirs in the flow formation zone.

Operation of Reservoir Hydrosystems

The annual inflow to the Nurek reservoir was 19.5 km³, including 16.2 km³ (83%) - over the growing season. Water releases from the reservoir were in the amount of 19.5 km³, of which 12.4 km³ or 63.6% of annual flow was discharged during the growing season.

Because of lower flow along the Panj River, the annual inflow to the Tuyamuyun reservoir was 17.6 km³. This was 4.1 km³ lower than the forecast and also 3 km³ lower for the growing season. Annual water releases from the reservoir

were 19.2 km³ or 85% of the value set in the schedule of the BWO Amu Darya. Water releases amounted to 13.6 km³ (82%) during the growing season.

Annual inflow to the Toktogul reservoir located on the Naryn River was 13.0 km³, of which 9.85 km³ (76%) – during the growing season. Annual water releases from the reservoir were higher than the inflow and amounted to 13.5 km³ and only 5.0 km³ (37 %) were discharged from the reservoir during the growing season. By the end of the growing season, the Toktogul reservoir was filled up to 19.3 km³.

Water Allocation and Water Shortage

Amu Darya Basin

There were some difficulties in provision of users with water in the Amu Darya Basin in 2018 as a whole. ICWC at its meeting decided to reduce water limits by 10% in April-May. In 2018, given the established limit of water withdrawal from the Amu Darya Basin at 54.3 km³ and the corrected limit of 53.5 km³, actually 46.5 km³ were diverted, including 31.9 km³ during the growing season. 87% of annual water limit was used in total, of which 83% - during the growing season. The following situation was observed by countries:

- Tajikistan given the water limit of 9.624 km³ and the corrected limit of 9.681 km³, the actual water withdrawal was 9.273 km³ or 95.8%;
- Turkmenistan given the water limit of 21.582 km³ and the corrected limit of 21.301 km³, the actual water withdrawal was 19.127 km³ or 89.8%;
- **Uzbekistan** given the water limit of 23.081 km³ and the corrected limit of 22.536 km³, the actual water withdrawal was 18.141 km³ or 80.5%.

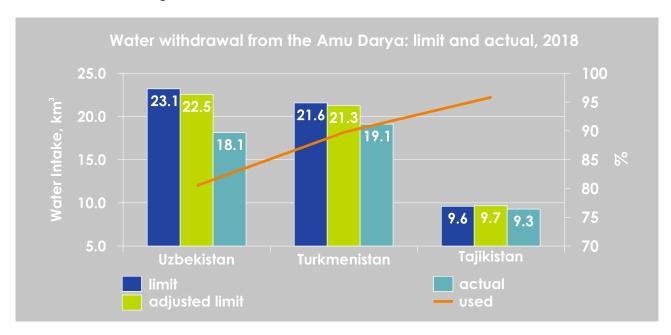
During the growing season, water shortage was estimated at 8% in the reach from the Nurek HPP to the Tuyamuyun reservoir in Tajikistan and 4% and 6% in Turkmenistan and Uzbekistan, respectively. In the reach from the Tuyamuyun

hydrosystem to the Samanbay post, the situation was worse: Turkmenistan and Uzbekistan has received by 34% and 36% less water, respectively, than they required during the growing season.

Syr Darya Basin

The total water withdrawal in the Syr Darya Basin was 13.5 km³, including 10.7 km³ or 92% of the

established limit on water intake to canals during the growing season. 0.283 km³ of water was discharged from the Arnasay into the Syr Darya. The water allocation plan of BWO Syr Darya was on average fulfilled by 91%. The water shortage was estimated at 16% in the reach from the Toktogul to the Chardara reservoir in Tajikistan, 20% in Kyrgyzstan, and 13% and 6% in Kazakhstan and Uzbekistan, respectively.



Inflow to Pregralie

In 2018, inflow into the Northern Aral Sea from the Syr Darya was 3.03 km³, while 3.31 km³ was discharged from the Northern Sea into the Large Aral Sea (Eastern part).

Based on SIC's estimates, the South Prearalie should receive 8 km³ of water from the Amu Darya in wet years (in terms of flow) and 3.5 km³ in dry years. Actually in 2018, 1.32 km³ or 17% of the required water quantity (for average year) was delivered to the South Prearalie.

Open Channel Losses

The Amu Darya balance calculations indicate to relative lowering of balance discrepancies along the river: 8.06 km³ during the growing season and 1.29 km³ during the non-growing season or 9.35 km³ in total.

Balance discrepancies along the Syr Darya has increased by 50% as compared to 2017 and amounted to 5.17 km³ a year, including 1.28 km³ during the growing season and 3.89 km³ during the non-growing season.

The reasons could be water losses (through evaporation and seepage), inaccurate measu-

rements of water discharge along the rivers, inaccurate accounting of return flow (lateral inflow to river section), unaccounted water diversion, and also mistakes in analysis of daily and ten-day discrepancies in case of changing amount of water in the river channel and floodplain (river training). In 2019, BWO Syr Darya and SIC ICWC has started conducting joint analysis of all elements of channel balance and actual flow discrepancies along the Syr Darya river for more reliable estimations of flow discrepancies and their minimization.

Meeting Demands

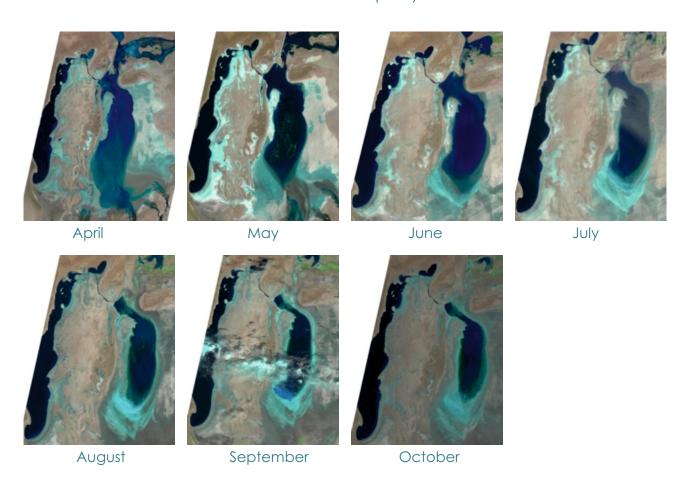
The Table below shows how water demands are met among the CA countries.

CA Countries	Meeting water demands in growing season, $\%$						
	Amu Darya	Syr Darya					
Kazakhstan	-	87					
Kyrgyzstan	-	79					
Tajikistan	92	84					
Turkmenistan	87	-					
Uzbekistan	76	94					

2.2. Monitoring of Changes in the Water Surface Area of the Large Aral Sea and the Amu Darya Delta

In 2018, SIC ICWC continued monitoring of changes in the water surface area of the Eastern and Western parts of the Large Aral Sea, as well as lake systems of the Amu Darya delta through satellite images Landsat 8 OLI (www.cawater-info.net/aral/data/monitoring amu.htm).

Figure 1. Satellite images of Western and Eastern parts of the Large Aral Sea, Landsat 8 OLI (2018)



2.2.1. Water Supply to the Aral Sea and the Amu Darya Delta

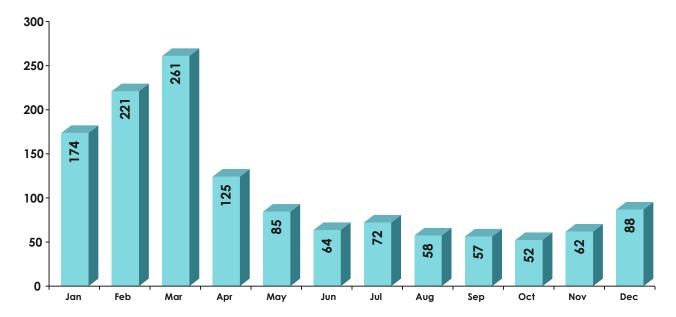
Water distribution along the Amu Darya

The analysis of water-related situation in the Amu Darya Basin in 2018 shows that the relatively highest water shortage (in % of the water limit) was observed in the lower reaches (36%). As mentioned above, about 3.5 km³ of water is needed to keep good environmental health of

deltaic lake systems in dry years. However, in fact, the lower reaches received 1.32 km³. Thus, the needed amount of water to the lake systems and the delta was not supplied.

The volumes of water by month are shown in the diagram below.

Monthly water supply to the Aral Sea and the Amu Darya Delta in 2018, including cumulative discharge from the Suenly and Kyzketken canals and the collecting drains, Mm³



Water discharge from the Northern Aral Sea

In the course of 2018, excess water from the Northern Aral Sea (located within the territory of Kazakhstan) was discharged into the Large Aral Sea. The total water discharge amounted to 3.31 km³, of which 3.118 km³ or 94% was discharged from January to April (see Table 1).

Table 1. Water volume in the Northern Aral Sea (NAS) and water discharge into the Large Aral Sea (LAS)

Indicators	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
NAS Level, m	42.09	42.02	42.06	42.05	42.05	42.03	41.97	41.92	41.78	41.56	41.61	41.69	41.9
NAS Volume, km³	24.6	24.4	24.4	24.0	23.7	23.2	22.6	22.0	21.7	21.9	22.2	22.8	23.1
Discharge into LAS, km³	0.911	0.715	0.740	0.752	0.011	0.009	0.017	0.014	0.013	0.023	0.036	0.069	3.310

2.2.2. Dynamics of Changes in the Water Surface and Wetland Area of Eastern and Western Parts of the Large Aral Sea

The water surface area in the Western part of the sea extended by 9,200 ha from April to June and that of the Eastern part enlarged by 66,000 ha from April to May (see Table 2).

This is explained by the discharge of water from the Northern Aral Sea (see Table 1).

Since then, the steady decrease in the water surface area has been observed in the both parts of the Large Aral Sea till November.

As a result, by November, the water surface area has shrunk by 2,600 ha in the Western part and by 282,000 ha in the Eastern part of the Large Aral Sea.

Table 2. The area of wetlands and open water surfaces in the Western and Eastern part of the Large Aral Sea, 2018 (Landsat 8 OLI)

Month	Apr	May	Jun	Jul Aug Sep		Oct	Nov			
Western part of the Aral Sea, ha										
Wetland	290,309	282,025	281,047	281,859	286,404	288,274	290,501	292,951		
Water surface	271,041	279,324	280,302	279,490	274,945	273,075	270,848	268,399		
Eastern part of the Aral Sea, ha										
Wetland	1,152,525	1,071,095	1,138,100	1,220,382	1,279,603	1,290,122	1,323,626	1,353,048		
Water surface	344,298	410,244	343,239	260,958	201,736	191,217	157,713	128,291		

2.2.3. Lake Systems of the Amu Darya Delta

The lake systems of the Amu Darya delta are represented by small local water bodies of the Southern Pregralie.

As a result of implementation by the Uzbek Government of the project on "Building of small local water bodies in the Amu Darya Delta", Phase I, 180,000 ha were watered, and local water bodies were formed to restore flora and fauna.

Currently, the Phase II of the project is underway to form additional water bodies on an area of 208,690 ha in total.

Meanwhile, the current actual hydrological situation in the South Prearalie is catastrophic due to dry conditions in 2018. In the period from April to November, the open surface area of lake systems in the South Prearalie decreased by 37,600 ha, i.e. 65% of lakes remained with no water (Table 3). Accordingly, the wetland area has increased by 37,600 ha (Table 4). This is proved true by satellite images of local water bodies in the Amu Darya delta (Landsat 8 OLI, August 2018), where only wetlands are seen and many lakes are dried out (Figure 2).

Table 3. The area of open water surface of the lake systems in South Prearalle, ha

Water body	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Sudoche	25,103	25,823	24,893	20,350	14,144	14,402	11,147	9,860
Mejdureche	7,047.5	4,723.3	2,725.3	1,130.5	402.0	170.8	51.5	625,2
Rybache	4,003.7	3,728.2	3,229.8	3,041.2	2,987.6	3,062.4	3,012.7	2,740.6
Muynak	1,319.2	998.7	786.8	626.5	566.9	907.3	546.0	395.0
Djiltyrbas dam-terminated	6,319.2	5,926.2	5,701.8	5,669.7	5,626.2	6,243.0	5,732.0	5,567.0
Djiltyrbas (together with former right and left streams)	1,778.9	1,552.7	1,131.9	433.5	153.4	84.4	20.0	33.0
Dumalak	270.3	74.8	12.4	0.0	-	-	-	-
Makpalkul	7,440.4	1,100.6	1,039.4	1,039.3	763.2	950.8	512.8	342.9
Mashan Karadjar	3,310.5	3,188.7	1,955.9	848.8	503.5	801.4	502.8	359.5
Water surface southward of Muynak	811.7	371.9	0.0	0.0	-	65.0	40.6	59.8
Water surface along Kazakhdarya river channel	21.2	0.0	0.0	0.0	-	-	-	-
Zakirkol	186.0	107.0	9.9	0.0	-	-	-	-
Total:	57,584	47,595	41,486	33,140	25,147	26,687	21,565	19,923

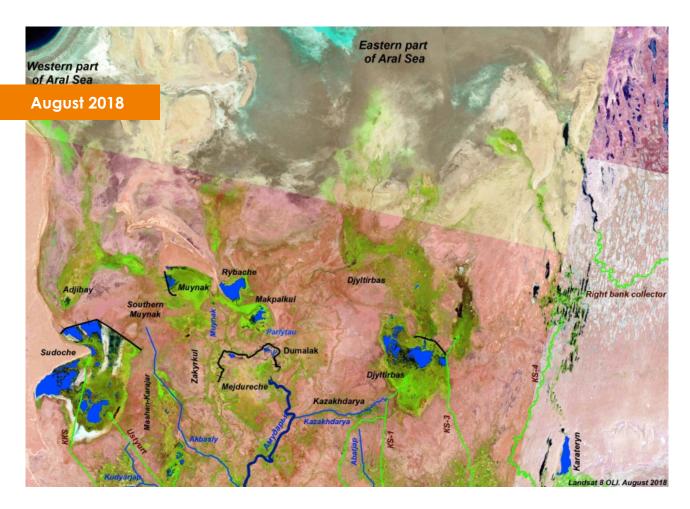
For comparison of the status of lake systems in the Amu Darya, let's compare the data over 2017. That period, 10.721 km³ flew to the delta and, consequently, the lake systems were filled with water in August. This is proven by satellite images in Figure 2.

Table 4. Wetland areas of lake systems in the Amu Darya delta, ha

Water body	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Sudoche	47,594	46,874	47,804	52,347	58,554	58,296	61,550	62,838
Mejdureche	29,011.9	31,336.0	33,334.1	34,928.9	35,657.4	35,888.7	36,007.9	35,434.0
Rybache	7,523.0	7,798.5	8,296.8	8,485.5	8,539.1	8,464.0	8,514.0	8,786.0
Muynak	14,844.7	15,165.2	15,377.1	15,537.3	15,597.0	15,256.7	15,617.9	15,768.4
Djiltyrbas dam-terminated	41,226.8	41,592.7	41,817.2	41,849.3	41,892.7	41,275.7	41,786.9	41,951.0
Djiltyrbas (together with former right and left streams)	97,249.0	97,475.2	97,895.9	98,594.3	98,874.4	98,943.5	99,007.9	98,994.3
Dumalak	15,780.2	15,975.6	16,038.1	16,050.5	16,050.5	16,050.6	16,050.6	16,050.6
Makpalkul	1,243.7	7,583.5	7,644.7	7,644.8	7,920.8	7,733.4	8,171.0	8,341.2
Mashan Karadjar	23,890.9	24,012.7	25,245.4	26,352.6	26,697.9	26,400.0	26,698.5	26,841.8
Water surface southward of Muynak	8,806.4	9,246.3	9,618.2	9,618.2	9,618.2	9,553.0	9,577.6	9,558.4
Water surface along Kazakhdarya river channel	4,730.2	4,751.5	4,751.5	4,751.5	4,751.1	4,751.5	4,751.5	4,751.5
Zakirkol	2,605.1	2,684.2	2,781.2	2,791.2	2,791.2	2,791.2	2,791.2	2,791.2
Total:	294,506	299,744	310,604	318,951	326,944	325,404	330,526	332,106

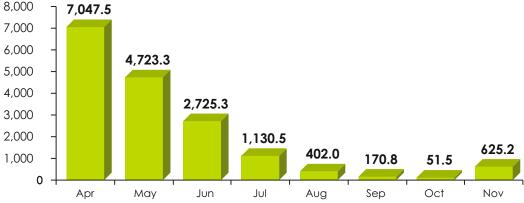
Figure 2. Satellite images of local water bodies in the Amu Darya delta (Landsat 8 OLI)





Mejdureche reservoir. Almost all water in the Mejdureche reservoir is used up in the mid-season, and the reservoir becomes completely dried by October as shown in the diagram below.

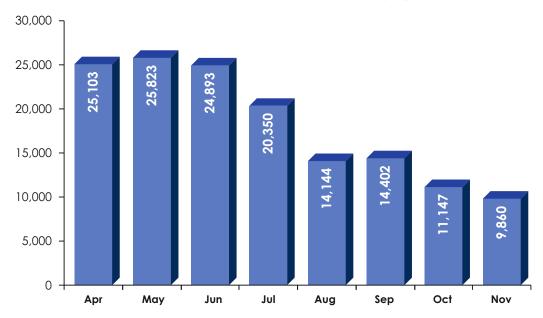




The Sudoche lake system is a state reservation. This reservation is expected to be included in the List of wetlands of the Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat.

The Sudoche lake system is recharged by drainage water mainly. At the same time, the river water inflow in early 2018 (60% of the annual value) kept the water surface area stable till June. After a decrease in the inflow, the area of lake has shrunk by 61% by November.

Dynamics of changes in the water surface area of the Sudoche Lake system, 2018 (ha)



Similar situation was observed in other lakes: Muynak, Rybache, Djiltyrbas. Moreover, Dumalak and Zakirkol lakes have dried up.

Conclusion

The results of monitoring over changes in water surface area of the Large Aral Sea and wetlands of the South Prearalie in 2018 indicate to continuing desertification. This is caused by dry conditions of the year and ineffective control over water use.

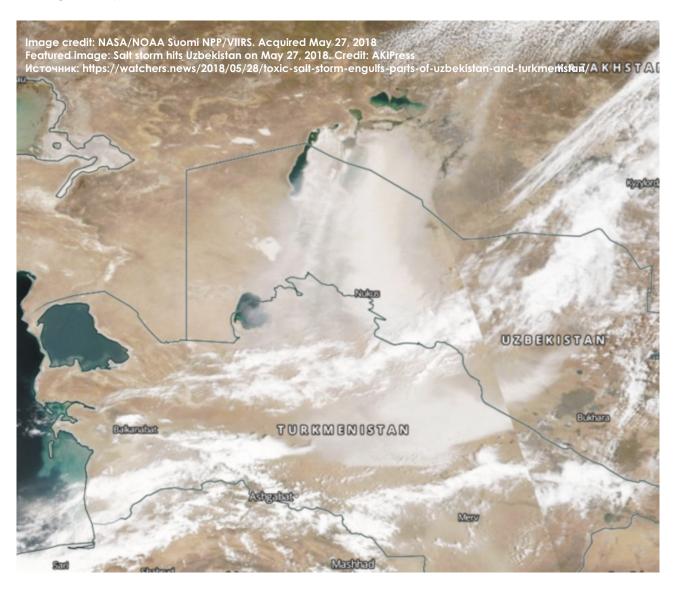
The planned infrastructure in the South Prearalie does not ensure stability of water surface areas for more than half a year. This could lead to the total loss of fish stock. The fish catch amounted to 2 tons in 2010, whereas only 0.4 tons of fish were caught in 2018. In this context, joint and coordinated actions of all riparian countries are needed on water conservation in order to ensure required amount of water (not less than 8 km3 a year) for the nature of the South Prearalie and the Aral Sea itself, including:

- drawing up of a strategy for environmental improvement and better water supply in the South Prearalie;
- development of feasibility study of a set of measures in the South Prearalie – completion of construction of infrastructure in the Amu Darya delta, including the Mejdureche reservoir and lake systems, the system of drainage water transfer from the Ozerniy collector to the Amu Darya;

- development of water governance system in the South Prearalie, including water management rules in the South Prearalie and recommendations for BWO Amu Darya and BISA to improve water efficiency in the lower reaches and ensure stable water supply to lakes and the Aral Sea;
- monitoring.

2.3. Dust and Salt Storm

A strong dust and salt storm hit north-western parts of Uzbekistan (Khorezm, Bukhara, and Navoiy provinces and Karakalpakstan) and northern Turkmenistan in the end of May 2018 and caused serious damage to crops and livestock.



Uzbekistan

The Hydrometeorological Service of Uzbekistan (UzHydromet) has recorded that the maximum permissible level (MPL) of dust in the air of Karakalpakstan and the Khorezm province was exceeded 3-5.9 times after the dust and salt storm. The analysis of samples in observation points showed that the dust level in the air in Nukus was 5.9 times higher than MPL on the 28th of May (data at 13:00).

UzHydromet's comments on the source of the storm (excerpts):

"On 27-28 May the cold air mass intruded from the northwest to the territory of Uzbekistan. High speed of frontal movement and wide temperature contrasts in the front zone contributed to strong northwest and north winds in all regions throughout the Republic. The wind speed reached 17-22 m/s and even 25-27 m/s in some areas. Most unfavorable weather conditions were observed in Karakalpakstan and the Khorezm province.

Dry weather has been observed in this region for a long period of time (last raining was on 25 April there). In May, the air intrusion was not accompanied by precipitation as well. Temperature contrasts in the front zone reached 20 degrees and more. Strong wind, which continued the whole day, has taken a huge amount of dust from the dried ground to

the air. Moreover, prevalent north wind caused transportation of salt from strongly saline ground of the dried bed of the Aral Sea...Dust and salt 'clouds' spread over large distances. Salt precipitated on roads, buildings and plants like a white powder."

Turkmenistan

The dust and salt storm hit the south of Dashoguz and Lebap provinces and reached even Ashkhabad. On 28 May, the citizens of Ashkhabad witnessed the thick 'fog', which turned to be clouds of white dust particles.

Excessive concentration of the dust sharply decreased road visibility, and the city seemed to be enshrouded in white haze from the foothills of the Kopet Dagh.

White dust covered plants and soils, intruded into buildings and lodged on cars. The concentration of dust was decreasing gradually, but even on 30 May the dust was clearly visible in the air of the capital of Turkmenistan.

Aftermath of the Storm

The resident of the Kungrad district, Karakalpakstan, Mr. T.Gayibov told that early vegetables were damaged seriously. Many dwellers tried to flush leaves of cucumbers, tomato and sweet pepper, but crops failed. Moreover, cattle died as the animals ate grass that was poisoned by salt.

According to hydrometeorologists, the MPL of dust in air samples taken in Nukus on the evening of May 27th was exceeded by 50%. At the same time, laboratory analyses showed that solid residues of phosphate, copper and nitrate in the soil did not exceed the MPL.

Allergy specialists observed that bronchial asthma and allergy disease incidences in Karakalpakstan would grow due to the dust and salt storm.

As a result of dust and salt storm in Dashoguz, a layer of salt covered cotton and wheat fields, as well as vegetable and fruit orchards. The thickness of this layer reached 1 cm in some villages. As a correspondent in Dashoguz reported, "the silkworm does not eat leaves of mulberry since those are salt covered.

This creates additional complexities. Farmers have to flush the leaves and wipe them dry to feed silkworms..." He added that pastures were also covered with salt: "Small ruminants and cattle do not eat grass. Livestock farms suffer from huge damage..."









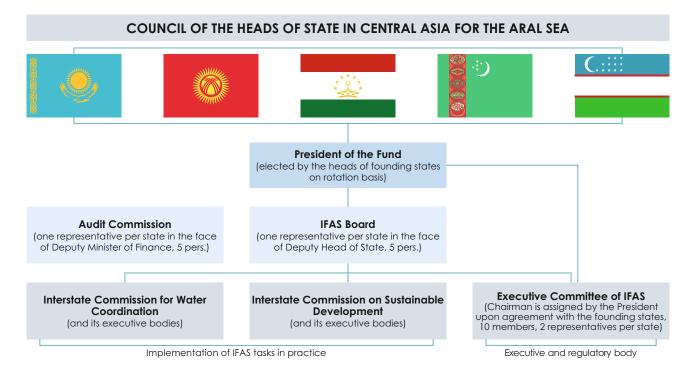


IFAS and Other Regional Organizations in Central Asia

3.1. IFAS: UN Resolution, Summit of the Heads of State, Meeting of the Board



The International Fund for Saving the Aral Sea (IFAS) was established by a decision of the Heads of CA states on the 4th of January 1993 with the aim of developing and funding environmental and applied research projects and programs in order to improve ecological situation in the areas affected by the Aral Sea catastrophe and address the socioeconomic issues in the region. The organizational structure of IFAS is shown below.



The chairmanship in IFAS is rotated among the CA countries every three years. In the period from 2017 to 2019 the Executive Committee of IFAS (EC IFAS) was based in Ashgabat. The mission of Turkemenistan's chairmanship in IFAS

is to further develop and strengthen cooperation among the countries in Central Asia for socio-economic and ecological improvement in the Aral Sea basin.

3.1.1. UN-IFAS Cooperation

On the 12th of April, the UN General Assembly at the 82nd plenary meeting of the 72nd session unanimously adopted Resolution A/RES/72/273 on "Cooperation between the United Nations and the International Fund for Saving the Aral Sea". In particular, the General Assembly:

"1. notes the need for further improvement of the activities of the International Fund for Saving the Aral Sea to strengthen regional cooperation in such areas as social and economic development; environmental protection and response to natural disasters; water resources management; adaptation to climate change and mitigation of its consequences; exchange of information; science and innovation; and other related areas:

2. also notes the importance of strengthening cooperation and coordination between the United Nations system and the

¹ Co-authors of the Resolution are Germany, Kazakhstan, Tajikistan, Uzbekistan and other states

International Fund for Saving the Aral Sea, and invites the Secretary-General to hold for that purpose regular consultations with the Chair of the Executive Committee of the International Fund, making use of appropriate inter-agency forums and formats, including consultations between the Secretary-General and the heads of regional organizations;

3. invites the specialized agencies and other organizations, programmes and funds of the United Nations system, as well as international financial institutions, to develop their

cooperation with the International Fund for Saving the Aral."

The full text of the Resolution is available on https://undocs.org/en/A/RES/72/273

As part of the chairmanship in IFAS, Turkmenistan also came forward with a proposal to develop a special UN programme for the Aral Sea basin and consider the Aral Sea problem as a specific area of activity of the United Nations. In this context, consultations have been started with the countries in the region.

3.1.2. XII Summit of the Heads of IFAS Founder-State

The Summit was held on the 24th of August in the city of Turkmenbashi (Turkmenistan). The Heads of IFAS Founder-States, such as the President of Turkmenistan Gurbanguly Berdymukhamedov, the President of Kazakhstan Nursultan Nazarbayev, the President of Tajikistan Emomali Rahmon, and the President of Uzbekistan Shavkat Mirziyoyev took part in the Summit. The President of Kyrgyzstan Sooronbay Jeenbekov participated as a guest of honor.

The Presidents addressed a number of important issues for the improvement of environmental, water-related and socioeconomic situation in the Aral Sea basin. They also approved the concept of ASBP-4 development.

Messages from Presidents

Extracts of the Presidents' statements during the Summit are provided below. The full text is available on CAWater-Info.net².

The President of Turkmenistan Gurbanguly Berdymukhamedov noted that the establishment of IFAS in January 1993 was a logical and timely step mirroring the commitments by the states of the region to tackle the Aral Sea problems. He called the CA countries to support the program on the enhancement of cooperation between UN and IFAS: "Preservation of the Aral Sea cannot be treated as an internal regional problem anymore. Successful solution of this problem requires support from the international community, a new focused and integrated global approach, active and systemic engagement of the UN system in this

work." The need to address the Aral problem as a specific area of UN's activity was underlined: "We have called it a Special UN Programme for the Aral, which would include concrete plans for stabilization and improvement in the Aral Sea basin. We are committed to promote water diplomacy as a new form of multilateral political and diplomatic communication in the field of water."

While stating an urgent need for new legal instruments regulating interactions of the riparian countries of the Aral Sea basin in the field of water management, the President of Turkmenistan reiterated the commitment of Turkmenistan to develop close and constructive cooperation with all the countries in the region.

Turkmenistan was always for addressing water and environmental issues in CA on the basis of recognized norms of international law, taking into account the interests of all countries in the region and involving international organizations, while recognizing that the regional consensus is the only admissible form of effective interstate cooperation. International cooperation on water and the environment should ground on relevant criteria at a national level. These are complementary and integral processes, said the President, while expressing his belief that each state should be fully aware of its role and responsibility.

In fulfilling national sectoral plans, Turkmenistan considers the environmental dimension of SDGs, particularly, optimization of water resource use. Speaking about tremendous experience accumulated in application of

² <u>www.cawater-info.net/library/rus/ifas/summit-ifas-2018.pdf</u>

modern water-conservation technologies in irrigated agriculture and in construction and operation of hydraulic structures, the Head of State noted that successful implementation of large-scale water projects contributes to agricultural development, particularly to rampup of grain, cotton and other crop production.

The Drinking Water Program has been launched in Turkmenistan. As part of the Program, new water treatment plans are constructed and put into operation. The work on saline water desalination is also underway. With the completion of the first phase of Turkmen Lake Altyn Asyr, collecting drains diverting drainage and waste water from oases would be connected into the single hydrosystem. In the context of the Aral Sea problem, combatting desertification and improving land conditions are of importance as well.

As a whole, over 25 years of the Fund's activity, construction of a number of hydraulic structures and water-management facilities was launched and nature-conservation, environmental and other related measures were undertaken to solve the Aral Sea problem. The President of Turkmenistan has assured the founder-states of IFAS of the Turkmenistan's commitment to noble goals of saving the Aral Sea, readiness to further joint actions on environmental, socio-economic and humanitarian improvement in the Prearalie and to regional and international cooperation in this field.

The President of Kazakhstan Nursultan Nazar-bayev stressed the symbolism of holding the Summit in the year of the 25th anniversary of creating the International Fund for Saving the Aral Sea and noted that: "IFAS works actively at the international level, thanks to which the Aral region receives substantial assistance from the international community and international financial institutions. Our joint efforts have contributed to the fact that the Fund received an observer status in the UN General Assembly."

The Head of State pointed out that the transboundary water resources of Central Asia are the common property and good of the area's population and stressed that all states actively seek solutions, rational ideas and specific projects are generated. Nursultan Nazarbayev has said that Kazakhstan is also actively working in this direction and invited the delegations of the countries to participate in the Eighth Session of the Meeting of the Parties to the UN Convention on Protection and Use of Transboundary Watercourses and International

Lakes. The Kazakh leader has particularly dwelled on the positive results that became possible due to the joint efforts being undertaken.

Nursultan Nazarbayev focused on the measures proposed by the Kazakh side for the improvement of the institutional and legal framework of IFAS based on the Fund's existing institutions: "The time has come to automate the system of management, allocation, accounting and monitoring of water resources in the Aral Sea basin, including their quality. Under the current circumstances it is important to re-address the issue of establishing the International Water and Energy Consortium of Central Asia. It is necessary to consider the permanent deployment of the Executive Committee of IFAS in one of our countries."

The Head of State has noted that today's meeting is a landmark event of international scale and will give a new impetus to the process of regional cooperation in the use of water resources and ecology. "We have defined new priorities and tasks here. The solution of these issues is of fundamental importance for ensuring the sustainable development and prosperity of Central Asia. Therefore, all this requires further coordinated joint actions from us. For my part, I want to assure you that Kazakhstan has been and remains a consistent and reliable partner in the issues of regional cooperation", Nursultan Nazarbayev said.

The President of the Kyrgyz Republic Sooronbay Jeenbekov stated that Kyrgyzstan is supportive of thorough reformation of IFAS, taking into account the interests of all the states in CA: "At present, the Fund is characterized by inconsistent regulatory documents and ineffective structure of executive bodies. It lacks transparency in reporting on attracted funding, fails locate Fund's statutory bodies in a balanced way, and introduce the rotation of heads of these bodies."

The President stressed that activities of the Fund are focused on water for irrigation and ecology, while ignoring other uses, including hydropower. No compensatory mechanism is stipulated for accumulation of water by the upstream countries for irrigation needs of friendly neighboring countries, although such mutually beneficial cooperation is successfully developed in global practices. The water allocation limits in CA do not respond to current realities and need to be revised, taking into account the interests of sustainable development in the region's countries. The Kyrgyz side

stands out for renewal of cooperation within the framework of the 1998 Agreement between the Governments of Kazakhstan, Kyrgyzstan, Tajikistan, and Uzbekistan on the use of waterenergy resources in the Naryn-Syrdarya basin that makes provisions for a compensatory mechanism of water and energy use.

Sooronbay Jeenbekov proposed to take the following measures.

First, as initially established, the Fund should become an organization for accumulation of finances and investments for priority projects in the area of water use, aimed at socioeconomic and sustainable development of all the states in the region.

Second, Kyrgyzstan proposes to dismiss the Interstate Commission for Water Coordination and the Interstate Commission for Sustainable Development and their executive bodies from the organizational composition of IFAS. Instead, consider a possibility of establishing new bodies that would ensure integrated use of water and energy resources and take into account hydropower and sustainable development aspects.

Third, eliminate branches of the IFAS Executive Committee in CA states and establish representation of the CA states at the IFAS Executive Committee instead.

Fourth, liquidate the IFAS Internal Audit Commission. Financial audit of the Fund should be taken by independent auditors.

Fifth, revisit the system of membership fees taking into account the needs and capabilities of the states, and put it on a voluntary basis.

Sixth, while reforming the Fund, take into account experience of such international organizations as UN, SCO and others.

Seventh, make inventory of the international treaty framework and optimize IFAS structure so that to bring them in compliance with the above mentioned proposals.

"I would like to note that given this separate position, the Kyrgyz side does not take part in consideration and approval of the Summit's resolutions, including the Joint Communiqué. I hope that the CA countries will manage to reform IFAS thoroughly as mentioned above in order to improve activities of the Fund and its bodies, while equally considering the interests and basic needs of the CA states. Then, the

Kyrgyz side would be ready to restart full-fledged participation in the Fund", said the Head of State.

The President of Tajikistan Emomali Rahmon underlined the wise decision of the CA states to establish IFAS 25 years ago.

"Thanks to joint and coordinated actions within the framework of the Fund, we were able to draw attention of the international community to the problems of the Aral Sea basin, established cooperation with international and regional organizations, financial institutions and donor countries, mobilized resources for projects and programs aimed at mitigating consequences of the Aral crisis ... Today we are faced with a number of common problems and our countries need to collaborate in addressing them", underlined the President. Among the key issues he listed the trends in global population growth and climate change, intensive land development and huge agricultural water losses, industrial and economic development, which together lead to a reduction in the total volume of water resources and increase in water consumption.

The Head of State once again pointed to Tajikistan's initiative regarding the rational use of freshwater resources of mountain Lake Sarez to improve the supply of drinking water to the countries of the region on a long-term period, dwelled in detail on the increases in weather and climate extremes leading to natural disasters causing enormous financial losses and human casualties.

In this context, the President of Tajikistan pointed to the initiative of Tajikistan on International Decade of Action "Water for Sustainable Development", 2018-2028, which aims to contribute to the achieving the UN Sustainable Development Goals for water.

The President pointed to a need for the improvement of institutional and legal frameworks of IFAS in order to adapt them to current realities and the relevance of the construction of small and medium-scale hydropower plants with reservoirs, which contribute to seasonal and multiyear water regulation, especially in low-water years, and reduce the risks of water-related disasters.

He also proposed to:

 continue efforts in reconstruction and modernization of existing hydraulic facilities, first of all, irrigation canals, where most of water is lost;

- promote economic mechanisms of water use and new water-conservation technologies, as well as the system of delivered water accounting;
- maintain strong economic integration for more balanced development of all countries in the region, also by ensuring free flow of goods, services and labor resources.

The President of Uzbekistan Shavkat Mirziyoyev underlined that "today's historic summit, which takes place after a nearly ten-year break, will open a new page in the organization's activities and will surely give a powerful boost to the partnership in Central Asia. Today we are reiterating our firm readiness for cooperation."

The consequences of the drying out of the Aral Sea aggravate, the Aral Sea region is steadily invaded by the desert. As a result, we observe water scarcity, soil degradation, biodiversity loss and severe climate change. "It is now crucial to unite the efforts to overcome the consequences of this catastrophe and improve the social and economic situation in the Aral Sea region, to solve the water and environmental problems of the region, taking into account our common interests," the Uzbek leader said. "... The International Fund for Saving the Aral Sea is the only regional organization intended to this cause and today it can become an effective mechanism for cooperation between our countries."

The President spoke about the efforts made by Uzbekistan to overcome consequences of the ecological crisis in the Aral Sea region. In particular, "Uzbekistan put forward an initiative on the establishment of the multi-partnership Trust Fund for Human Security in Prearalie that was supported by UN." Then, the Head of State has voiced five priority areas of cooperation:

"First. ... I propose considering a declaration of the Aral Sea region (Prearalie) the zone of environmental innovations and technologies... For thorough discussion of our initiative, it is suggested to organize a special conference with the support of UN, WB, ADB, and GEF next year...

Second. ... we propose establishing a Regional center for production of desert and forage crop seedlings... The Center is to become a unique research and training polygon.

Third. This concerns the preservation of our unique regional fauna... In this context, we propose arranging protected transboundary natural territories in Pregralie...

Fourth. It is necessary to enhance regional cooperation in the field of water conservation, management and use of transboundary water resources ... and hold a relevant regional conference in Uzbekistan... As a result, a Regional program of rational water use in Central Asia should be adopted.

Fifth. ...we consider it important to carry our joint multidisciplinary research, including on the base of scientific-information centers of the Interstate Commission for Water Coordination and the Interstate Commission for Sustainable Development..."

3.1.3. Meetings of the IFAS Board

The regular meeting of the IFAS Board was held on the 30th of January in Ashgabad. Preparation to the meeting of the Council of the Heads of IFAS Founder-States and elaboration of ASBP-4 were discussed at the meeting. The need for participation of EC IFAS in meetings and events of ICWC and ICSD was underlined. The Board approved the work plan of EC IFAS for the period of chairmanship of Turkmenistan.

The special meeting of the IFAS Board was held on the 23rd of August in Turkmenbashi. The participants signed and approved the texts on the improvement of the Fund's activity and voiced a number of important initiatives and proposals. The Board in its decision approved the Concept of ASBP-4 development and instructed the EC IFAS to start elaboration of the program together with ICWC and ICSD and with the involvement of national experts and international partners.

JOINT COMMUNIQUE

Following the Summit, a Joint Communique was adopted:

"...During negotiations which took place in the atmosphere of friendship and mutual understanding, the Heads of State discussed the issues of cooperation ... and noted the valuable contribution the International Fund for Saving the Aral Sea made in this field over 25 years of its existence...

The Presidents emphasized the need of further developing and strengthening the relations of equal and mutually beneficial cooperation in terms of the use and protection of transboundary watercourses ...

The Heads of State welcomed the adoption of the UN General Assembly Resolution dated April 12, 2018 "On cooperation between the United Nations and the International Fund for Saving the Aral Sea", the UN General Assembly Resolution dated June 18, 2018 "On Strengthening Regional and International Cooperation to Ensure Peace, Stability and Sustainable Development in the Central Asian Region", as well as the UN General Assembly Resolution dated December 21, 2016 "International Decade for Action: Water for Sustainable Development 2018-2028"...

The Heads of State noted the importance of elaborating "The Aral Sea Basin Programme (ASBP-4)" ensuring that efforts and capacities of the region and the international community shall enable to address the common for the Aral Sea Basin priorities in water management, environmental and socioeconomic issues...

The Heads of States noted the significance of the results of the Dushanbe High-Level Conference on the International Decade for Action: Water for Sustainable Development 2018-2028, the Central Asian International Environmental Forum and the Tashkent International Conference "Joint Actions to Mitigate the Consequences of the Aral Sea Catastrophe: New Approaches, Innovative Solutions, Investments" that allowed promoting cooperation between the countries in the region to achieve the Sustainable Development Goals...

The Presidents encouraged the development of the Regional Environmental Protection Programme for Sustainable Development in Central Asia...

The Heads of States noted the need to consider the possibility of developing a special UN programme for the Aral Sea Basin and instructed the IFAS Executive Committee to hold consultations with the states of the region, UN member states, the United Nations and its institutions...

The Presidents of the countries discussed the possibility of joining to the Framework Convention on Environmental Protection for Sustainable Development in Central Asia dated November 22, 2006...

The Heads of States, taking into account the mutual interests of the Parties, noted the importance of hydropower facilities that are under construction on transboundary watercourses. However the interests of all countries concerned as well as the international principles and standards shall be taken into due account to ensure social and economic development of the Aral Sea Basin area.

The Parties pointed out the importance of promoting automatic operation of hydroposts throughout the entire Syr Darya river basin through fund raising activity based on the agreement reached by the heads of water management organizations of the Founder-States of IFAS.

The Kazakh side proposed to include the possibility of creating a sustainable regional mechanism for the integrated use of water and energy resources in Central Asia.

The Presidents expressed their readiness to further improve the organizational structure and the legal framework of IFAS...

The Heads of State noted the importance of the regional youth movement for the protection of water resources and the environment to ensure the participation of the younger generation in addressing modern challenges and threats...

...the Uzbek side proposed to organize training to develop knowledge and skills of human resources in the field of water resources and environmental protection as well as interdisciplinary research on the basis of the Tashkent Institute of Engineers of Irrigation and Agricultural Mechanization in cooperation with the leading higher educational institutions of the states of the region.

The Parties instructed the IFAS Board to develop the Action Plan to put in practice the agreements reached and ensure control over its implementation...

Turkmenbashi, August 24, 2018

The full version of the Joint Communique is available on www.icwc-aral.uz/pdf/79-en.pdf

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 following a decision of the Interstate Council of the 13rd of July 1993. It serves as a platform for dialogue between the CA countries and the international community.



Location of EC IFAS by Country and Year



According to the decision of the President of Turkmenistan G. Berdymukhammedov of June 16, 2017, the EC IFAS was established in Turkmenistan to operate from 2017 to 2019.

Activity of EC IFAS in 2018

According to the approved work plan of EC IFAS, the development of ASBP-4 and REAP started.

Development of ASBP-4

ASBP-4 is developed in the following directions: integrated use of water resources; environment; socio-economic; improvement of institutional and legal mechanisms. Relevant regional and national work groups were established among the representatives of IFAS bodies, ministries and departments of founder-states, and international experts. The concept for ASBP-4 development was approved. With the assistance of

Turkmen MFA and the support of GIZ TWMCA Programme, the below meetings were held:

- Coordination meeting of EC IFAS together with international development partners. Following the meeting, cooperation priorities were set and a decision was made to form an Advisory group to improve the effectiveness of support provided by international community to CA (9-10 May, Ashgabad);
- 1st Meeting of Regional Work Group on the development of ASBP-4 and the improvement of institutional and legal framework of IFAS (16-17 May, Ashgabad).

Revision of REPSD CA

A work meeting was held among EC IFAS, ICSD and representatives of the GIZ Programme for sustainable and climate sensitive land use for

economic development in Central Asia to discuss joint actions for elaboration of the **Regional Environmental Program for Sustainable Development in Central Asia** (REPSD CA) (4 April, Ashgabad).

Expeditions

To attract the global community to urgent issues in the Aral Sea basin and study the current state of Central Asian natural and water sites in situ, two expeditions were organized in 2018: research expedition (16-23 May, Small Aral) and study-tour across the Aral Sea Basin (10-29 August). These events were organized under the theme "25" Anniversary of the International Fund for Saving the Aral Sea" with the financial support from GIZ TWMCA.

Regional and international cooperation

As part of the UNECE regional project "Dam safety in Central Asia: capacity-building and regional cooperation", EC IFAS held the Regional meeting on cooperation for dam safety in CA, where the region's country delegations, representatives of international organizations and invited Russian experts took part (30-31 May, Almaty).

The side event "Results of the Summit of the Heads of CA State: Practical solutions and prospects for regional water cooperation" was organized jointly with UNECE, ED IFAS in RK, SIC ICWC, CAREC and GIZ TWM CA during the Eight session of the Meeting of the Parties to the Water Convention (11 October, Astana).

As part of cooperation with GIZ, EC IFAS met with managers of GIZ TWM CA Programme (6 February, Ashgabad); GIZ Regional Programme "Ecosystem-based land use and preservation of ecosystems at lower reaches of the Amu Darya" (2 October, Ashgabad); GIZ Regional Programme for sustainable and climate sensitive land use for economic development in Central Asia (Sustain-CA) (5 November, Ashgabad). The major contribution of GIZ to the enhancement of environmental and water cooperation between the CA countries in the face of such challenges as climate change and land degradation was acknowledged and GIZ's interest was expressed in further cooperation with EC IFAS on REPSD CA and ASBP-4 and the institutional improvement of IFAS as the only regional organization that unites the CA countries.

Cooperation is maintained with WB in supporting IFAS' program and project activity aimed at socio-economic improvement in the CA countries (19 September, Ashgabad).

EC IFAS delegation took part in the following events:

- 8th World Water Forum (17-23 March, Brazil), as part of which the CA region side-event "Transboundary water cooperation for food, energy and environmental security in Central Asia" was organized (21 March);
- International Conference of the Eastern Europe, Caucasus and Central Asia Network of Water Management Organizations "Water for land reclamation, economic sectors and natural environment in the context of climate change" (7 November, Tashkent).

Based on the EC IFAS - CAREC Memorandum of Cooperation (13 November 2017, Ashgabad), the Project "Central Asian Dialogue on the Use of Multisectoral Financing Opportunities through Enhancing the Water-Energy-Food Nexus" is implemented at the national level in Turkmenistan. The project is financed by EU and implemented by CAREC in partnership with IUCN with the support of EC IFAS. The overall objective of the project is to create a multisectoral enabling environment to facilitate sustainable and climate-resilient investments for increased water, energy, food security in Central Asia. As part of the project, the following meetings were organized with participation of EC IFAS:

- first meeting of the inter-agency working group in Turkmenistan to discuss opportunities for investment projects and to launch an intersectoral mechanism for developing project proposals in Turkmenistan (6 March, Ashgabad);
- first meeting of the regional working group on nexus approach (13 March, Tashkent) that finally should produce a portfolio of investment projects that will look at ensuring security of water, energy and food in CA;
- first training workshop on multi-sectoral investments, during which the participants were familiarized with the concept of benefit sharing, the computer-based hydro-economic model – Water, Hydropower and Agriculture Tool for Investment and Financing (WHAT-IF) – for evaluation of investments and financing of water, hydropower and agriculture sectors, the Guidelines for investors and Knowledge hub (8 October, Astana).

Source: EC IFAS

3.2.2. Regional Center of Hydrology

The Regional Center of Hydrology (RCH) at EC IFAS was established on the 23rd of August 2002 in line with a decision of the IFAS Board to improve the system of hydrometeorological forecasts,

environmental monitoring and data exchange between the national hydrometeorological services (NHMS) in the region.

3.2.3. Executive Directorate of IFAS in Kazakhstan

ED IFAS renders assistance in addressing topical issues and coordinating measures to improve water-related, socio-economic and environmental situation in the Kazakh part of the Aral Sea basin.

Activity of ED IFAS in Kazakhstan in 2018

Development of ASBP-4

Representatives of the Executive Directorate took part in the meeting of the national working group on the development of ASBP-4 and the institutional and legal improvement of IFAS (29 October, Astana). The participants discussed Kazakhstan's proposals on most topical projects in the four key areas of ASBP-4 that are to be submitted for consideration before the second meeting of the regional working group.

Expeditions to the Aral Sea

- support was provided to exploratory mission organized by the Kazakh National Geographic Society to South and North Aral ecosystems from 10 to 29 May;
- scientific expedition was organized for researchers from the CA countries along the route from Kyzyl- Orda to the Northern Aral Sea (Small Aral) in 16-23 May. The expedition was financed by the GIZ TWMCA Programme;
- the study-tour was organized for water managers from CA countries and Afghanistan to the Kazakh territory of the Aral-Syrdarya basin (from Shardara reservoir to the Northern Aral Sea) on 20-26 May in cooperation with CAREC as part of the "Smart Waters" Project;
- support was provided to the expedition of young scientists from CA and Afghanistan – "From glaciers to the Aral Sea" - on 1-21 August. The expedition visited key reservoirs and hydro facilities in Central Asia and was organized by the Kazakh-German University (KGU) and CAREC.

Public outreach

Raising public awareness about the Aral Sea problems is among priorities of ED IFAS. Activities in this direction included:

- roundtables, environmental actions (planting of trees, voluntary community work) and cultural projects, such as demonstration of documentary about the history of the Aral Sea and celebration for the first time of the Aral Sea Day (26 March, Kyzyl-Orda, Aralsk and Kazalinsk in Kyzylorda province);
- art exhibition for artists of the Aral region in the provincial gallery in Kyzyl-Orda; "Paryz" performance about the fatal history of the Aral Sea and complicated lives of population in the Aral region in the provincial drama theater;
- development of Research and Tourist Center "Aral" designed to coordinate research and develop touristic activity in Prearalie (coast of Kamystybas Lake located 40 km far from the Aral Sea);
- propaganda of the IFAS library, review lectures and orientation sessions in higher educational institutions of Kazakhstan. Publication of information and analytical articles and scientific op-ed pieces, interviews in mass media.

Regional and international cooperation

- signing Memorandum of cooperation between ED IFAS in Kazakhstan and the World Centre for Sustainable Development (Rio+) (8th World Water Forum, 18-23 March, Brazil);
- International scientific and practical conference "Aral Sea in the stream of modern history" (24 May, Kyzyl-Orda) was organized jointly with GIZ and CAREC to discuss the scientific grounds and practical solutions for topical problems in

the Aral Sea basin, the ideas and proposals resulted from the expedition and demonstration tour;

- support to organization of the Regional meeting on dam safety cooperation in Central Asia (30-31 May, Almaty);
- side-event "Results of the Summit of the Heads of CA State: Practical solutions and prospects for regional water cooperation" was held during the Eight session of the Meeting of the Parties to the Water Convention. Photography exhibition was also organized and information on the results of the "Aral Summit 2018" was disseminated (11 October, Astana);
- ED IFAS took active part in preparation to the XII Summit of the Heads of IFAS Founder-States, in 5th Session of the UNESCAP Committee on Environment and Development. Photography exhibition on the Aral Sea was organized as part of the session as well (21-23 November, Bangkok);
- further assistance, in cooperation with GIZ, in gathering meetings of the Aral-Syrdarya Basin Council.

Capacity building and education

The Executive Directorate assisted in organization of a training workshop of the International Training Center for the Safety of Hydrotechnical Constructions at the Kazakh Water Research Institute (KazNIIVH) in Taraz.

Upon initiative of ED IFAS in Kazakhstan and OSCE Office in Astana, the training on "Integration of training modules for vocational training in the water sector" was held at the Kazakh National Agrarian University (2-5 July, Astana).

ED IFAS in Kazakhstan organized enlarged meeting of the Republican Education Board for water professions (8 October, Taraz State University) with the support of the CAREC-USAID "Smart Waters" Project.

Upon request of the Kazakh Ministry of Labor and Social Protection and the National chamber of entrepreneurs "Atameken", occupational standards for agri-industrual sector, including 15 profile sectors, such as "Engineering reclamation and watering of pastures", "Water supply, wastewater disposal and water protection", etc. were developed.

Source: ED IFAS in Kazakhstan, www.kazaral.org

3.2.4. IFAS Agency for Implementation of the Aral Sea Basin and GEF Projects

The IFAS Agency established in 1998 is a working body of IFAS. It has the status of international organization and accreditation at the MFA of Uzbekistan.

The project activity is carried out together with the Nukus branch of EC IFAS through the state budget of Uzbekistan as its contribution to IFAS and the donor's grants. In 2018, activities on the following projects were undertaken:

"Construction of small local water bodies in the Amu Darya Delta. Phase II"

- completed construction and mounting work on a coffer-dam from DP0+00 to DP18+51 and reached required flow capacity under the reconstruction of 11 ditches;
- started dredging work under the reconstruction of the Muynak canal;

drafted contractor agreement for construction work on "Reconstruction of a road dam along Maipost Lake and construction of an overflow structure at the Amu Darya River (Akdarya) together with measures to prevent canyon formation processes in Domalak Lake".

"Protective afforestation in Akhantai site"

- completed arrangement and repair of mechanical protection on 137.5 ha and 208.5 ha, respectively;
- planted seedlings on 422.71 ha by a special equipment and on 133.5 ha by hand:
- additional seedlings planted in furrows on 405.0 ha.

[&]quot;Protective afforestation in Akkum ridge"

- completed arrangement and repair of mechanical protection on 209.3 ha and 101 ha, respectively;
- planted seedlings on 165.16 ha by hand;
- additional seedlings planted on 122.41 ha.

"Organization of social assistance to population in Prearalie"

30 new job places were founded and more than 600 million soums were allocated in form of micro-credits for population.

"National water resources management in Uzbekistan" (SDC)

- initiated assistance in developing the Water Management Concept;
- built capacity of the Information-Analytical Resource Center through target trainings and developed web-site, online water monitoring portal and "Tomchi" mobile application;
- developed, discussed with stakeholders and submitted for expertise of donors a training course on the efficient water use and application of water conservation technologies;
- completed construction of water meters and regulating structures in 6 sites of farmer field schools and laser leveling in 2 sites. Created and made operational 14 farmer field schools; as a result, cotton productivity increased by 20% and that of wheat – by 36%.

Charity

As part of the "Humanitarian aid to social services and organizations in the Republic of Karakalpakstan", freezers and conditioners were bought for the Republican oncologic center of the Karakalpakstan Ministry of Health.

Republican and international events

Support was provided in organization of the international conference "Joint actions to mitigate the consequences of the Aral catastrophe: new approaches, innovative solutions, investments" (6-7 June, Tashkent, Muynak) and the international conference "Water for land reclamation, economic sectors

and natural environment in the context of climate change" (6-7 November, Tashkent).

The IFAS Agency took part in the scientific expedition to the Northern Prearalie (16-23 May) and in the 8th World Water Forum (19-22 March, Brazil). The Agency provided support and assistance in organization of the UNDP's action "100 marathons, 100 days, 1 reason: Water" in form of a six-day expedition to Prearalie, including 3 days along the 120-km stretch on the dried bed of the Aral Sea from Muynak to Western Sea and along Ustyurt (17-22 November).

Work completed by request of the Government of Uzbekistan and the republican ministries and departments

Assistance was provided for preparation of documents, policy briefs, notes and reports, including preparation and publication of the book "Water Resources Management in Uzbekistan", as well as in the fulfillment of Decrees of the Uzbekistan's Cabinet of Ministers; the Agency worked on citizen appeals to the virtual chamber of the President of Uzbekistan regarding the Aral Sea problem and took part in the Sectoral working group on the establishment of the UN Multi-Partner Human Security Trust Fund for the Aral Sea region (initiated by the President of Uzbekistan Shavkat Mirziyoyev at the 72nd UN GA session in 2017).

Regional and international cooperation

The Agency hosts and assists in organization of joint workshops together with the National Water Partnership of Uzbekistan. Work meetings were held with the team of experts from the Korean International Cooperation Agency (KOICA) Project "ICT-based Integrated Water Resources Management System in Uzbekistan". More than 30 meetings, negotiations and consultations with representatives of authoritative international organizations, financial institutions and donors were held.

Media outreach

Materials of the IFAS Agency were published in a number of national and international print media and online magazines: 9 August, the Asahi Shimbun, Japan; 29 August, Turon 24; 17 June, Narodnoye Slovo; anhor.uz, Vesti.uz, ctzn.uz and others. Reports on events held by the Agency were regularly translated on national TV-channels "Uzbekistan 24", "Yoshlar", "Uzreport", etc., as well as on Karakalpakstan and Khorezm TV. Assistance was

rendered to German television ARD^3 in the production of a documentary video piece about the Aral Sea problems that was demonstrated on the German central TV on the 14^{th} of June.

Capacity building and education

The head of the IFAS Agency delivered a lecture to students of the Tashkent Institute of Irrigation and Agricultural Mechanization Engineers (TIIAME) on the theme "Towards the solution of

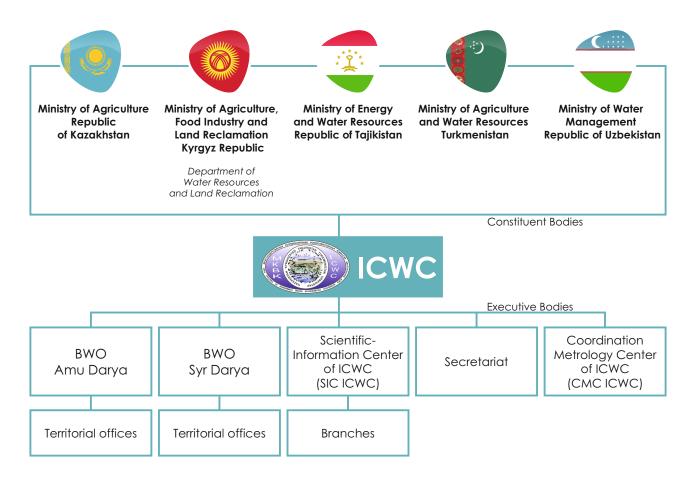
the Aral Sea crisis" (March); as part of the US Cochran Fellowship⁴ and California University Program, took part in the study tour on conservation irrigation technologies (8-22 September, California, USA). The Agency received the group of students and lecturers from the Colgate University, USA. During the meeting, the Aral Sea problems and the ways for solution under umbrella of IFAS were presented (25 May).

Source: GEF IFAS Agency; https://aral.uz/wp/about/

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 control, efficient use and protection of water from the interstate sources of the Aral Sea basin and implements jointly developed programs on the basis of cooperation and mutual respect for the parties' interests. The Commission was formed on the 18th of February 1992. The organizational set-up of ICWC is shown in the figure below.



³ "Arbeitsgemeinschaft der öffentlich-rechtlichen Rundfunkanstalten der Bundesrepublik Deutschland

⁴ Program of the US Department of Agriculture – the Cochran Fellowship Program provides training opportunities for senior and mid-level specialists and administrators working in agriculture from the public and private sectors.

3.3.1. ICWC Meetings

In 2018, ICWC held three meetings: 73rd (3 May, Kyzyl-Orda), 74th (22 August, Turkmenbashi), and 75th meeting (27 November, Dushanbe). ICWC members from Kazakhstan, Tajikistan, Turkmenistan, and Uzbekistan⁵, as well as executive bodies (SIC ICWC, Secretariat of ICWC, BWO Amu Darya and BWO Syr Darya) and invited persons took part in those meetings.

Issues addressed

The main items on the agenda of the meetings were the limits of water withdrawals and the operation regimes of reservoir cascades in the Syr Darya and the Amu Darya basins. The Commission considered and approved forecasts and water limits for growing (2018) and nongrowing (2018-2019) seasons and summarized their use in growing and non-growing seasons (2017-2018). The parties agreed to finalize and negotiate the approval of the acceptable operation regime of the "Bakhri Tojik" reservoir for the growing season 2018 (73rd meeting). It was recommended for BWO Syr Darya together with Kazakh experts to analyze the data from gauging stations and report the results to ICWC members (75th meeting).

Concerning the draft Agreement between the Governments of Kazakhstan, Kyrgyzstan,

Tajikistan, Turkmenistan and Uzbekistan on the Information and Analytical Support of Water Management, Use, and Protection in the Aral Sea Basin and the Arrangement of Interstate Exchange of Information, SIC ICWC was entrusted with continuation of the efforts on information collection and dissemination under its mandate and in line with existing agreements. The parties also took into account the fact that the Tajik side refrained from work under the Draft Agreement until its own national information system of water resources was developed (74th meeting).

As to the "Implementation Plan on strengthening ICWC activities in key directions" , given the lack of financial support from donors, the ICWC members decided to fulfill the plan in 2018-2019 by subordinate agencies and executive bodies of ICWC at their own expense (73rd meeting). Active efforts of ICWC on the development of ASBP-4 (75th meeting) and appeal to EC IFAS Chairman on inclusion of representatives of all ICWC executive bodies into RWG for selection of project proposals were supported (74th meeting). The ICWC members deemed it appropriate to invite the Chairman of EC IFAS to ICWC meetings.

3.3.2. ICWC Working Groups

According to a decision of the 73rd meeting of ICWC, the Kazakh Ministry of Agriculture, BWO Amu Darya, BWO Syr Darya and SIC ICWC have set the list of actions to be done as part of the "2018-2019 Work plan of ICWC working groups" and updated the membership in the working groups.

In 2018, based on commitments made under the Plan, SIC ICWC did work in the following directions.

"Water conservation":

Developed key elements for revision of water-allowance zoning, given the current climatic, soil and hydrogeological conditions. Prepared a project proposal on "Correction of water-allowance zoning (boundaries of water-allowance)

- zones and revision of crop irrigation schedules";
- Analyzed forecasts of potential reduction of water withdrawal by two scenarios: i) business as usual (BAU); ii) decrease in resources (due to climate change and increased diversion of water by Afghanistan) approximately by 8 km³ along the Amu Darya and by 2 km³ along the Syr Darya;

"Implementation of integrated water resource management and adaptation to climate change":

In 2018, additional 50 IWRM practices were added to the database and interactive map of best practices on water, land and energy use and

 $^{^{5}}$ Since the 68 $^{\rm th}$ meeting, representatives of the Kyrgyz Republic have not taken part in ICWC activity

⁶ Approved and recommended at 63rd ICWC meeting (18-19 April 2014, Tashkent)

environmental protection in Central Asia⁷, including 12 practices for Kazakhstan; 12 practices for Kyrgyzstan; 7 practices for Tajikistan; 6 practices for Turkmenistan; and 13 practices for Uzbekistan (SIC administered population of the database);

Prepared proposals on further development of basin councils at BWO Syr Darya and BWO Amu Darya and their territorial branches and the draft model By-laws of BWO Water Council.

"Improvement of water accounting quality and accuracy":

- Prepared project proposal resume "Establishment of zonal metrological centers in transboundary basins of Syr Darya and Amu Darya" for its inclusion into ASBP-4;
- Jointly with BWO Syr Darya and other concerned organizations, prepared a project proposal "Automation of gauging stations throughout the Syr Darya River basin". Importance of this subject was

noted in the Joint Communiqué of the Summit held in Turkmenbashi.

"Building capacity of regional and national organizations":

- Prepared training course on R-programming "Opportunities of utilizing remote sensing for applied problems";
- Prepared a project proposal "Building capacities for the improvement of vocational water training system in CA countries" for its inclusion into ASBP-4. The project provides for update of the current courses and development of new courses and modern methods of training, e.g. e-learning;
- Worked on organization of e-learning courses on topical water management issues for CA countries;
- Developed the Training Center web-site, which is to include information on all capacity building events in the water sphere in CA countries.

3.3.3. Activities of ICWC Executive Bodies in 2018

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 Prearalle and the Aral Sea. Established in September 1, 1987, with the headquarters in Urgench and four territorial divisions.



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 Prearalle and the Aral Sea. Established in September 1, 1987, with the headquarters in Tashkent and four territorial divisions.



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 $6^{\rm th}$ ICWC meeting on the $10^{\rm th}$ of October 1993 in Dushanbe.



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 $5^{\rm th}$ of December 1992, with the headquarters in Tashkent and 3 branches.



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 23rd October 1999, with the headquarters in Bishkek.

⁷ Interactive map was developed by SIC ICWC upon request of CAREC as part of the Project "Promotion of dialogue for conflict prevention related to water nexus in Central Asia (CAWECOOP)" financed by EU.



BWO Amu Darya

In 2018, BWO Amu Darya continued working on interstate water allocation and real-time control over observance of the established water withdrawal limits, on modernization and operation of waterworks facilities that are under responsibility of BWO, and prepared materials for and participated in three ICWC meetings and 11 meetings of water managers of the river's lower reaches on water allocation issues.

Regional and international cooperation

In the course of 2018, BWO Amu Darya maintained cooperation with EC IFAS, national water agencies of Turkmenistan and Uzbekistan, National Hydrometeorological Services, SIC ICWC, CAREC, and GIZ. Representatives of BWO Amu Darya and its territorial branches took part in regional programs, conferences, and training workshops, including:

- final workshop "Transboundary Water Management Adaptation in the Amu Darya River Basin to Climate Change and Future Challenges: Tools and Recommendations" as part of the USAID-PEER research project "Transboundary water management adaptation to climate change uncertainties in the Amu Darya River basin" (31.01-01.02.18, Tashkent);
- training workshop as part of the Nexus Project on preparation of project proposals for their inclusion into ASBP-4 (Urgench);

With the support of GIZ, training was organized for BWO's staff on how to handle the web-site of BWO Amu Darya, and the hardware and software for evaluation of snow cover in the catchment area of the Amu Darya River was provided.

Source: BWO Amu Darya

BWO Syr Darya

BWO Syr Darya is responsible for diversion of water from the Naryn, Karadarya, Syr Darya and Chirchik rivers and its distribution between statewater users through hydroschemes, intake and distribution structures and canals. For efficient use of water resources and regular and failure-free supply of water to users BWO Syr Darya ensures maintenance of hydraulic structures, canals, gauging stations, communications, buildings and other sites that are on the books of BWO's territorial branches.

Activities undertaken in 2018

- preventive maintenance to avoid faults of the automated control and monitoring system at large and important structures, such as Uchkurgan and Upper Chirchik hydroschemes; annual scheduled checking of gauging stations; current repairs of hydraulic structures at Parkent canal and Big Keles main canal;
- repair and replacement of gates at: check structures of the Dustlik canal and South Golodnostepskiy canal (SGC) and escape structure of the Big Fergana canal;
- current repairs of gates at headwork of SGC and on 58 km of Dustlik canal and the K-96 outlet of the same canal;
- power-aid cleaning and rehabilitation of slope-sides of Dustlik canal, BFC and the dam of feeder canal;
- reconstruction and modernization of Kuyganiar hydroscheme⁸: work was continued on rehabilitation of discharge carrier and reconstruction of tail-water site;
- work completed on design specifications and estimations of the following structures: reconstruction of tail-water of the headwork of North Fergana canal; reconstruction and modernization of mechanical part of Kuyganiar hydroscheme at the Karadarya River; reconstruction and modernization of the SGC headwork and the Dustlik canal's headwork.

Source: BWO Syr Darya

ICWC Secretariat

In 2018, the ICWC Secretariat jointly with other executive bodies took part in organization of three meetings of ICWC and in the fulfillment of ICWC decisions and instructions. Jointly with agencies of the Tajik ministries of energy and water resources and foreign affairs and international financing organizations, the Secretariat was involved in preparation and organization of the International High-Level Conference on International Decade for Action "Water for Sustainable Development, 2018-2028", which finally adopted the Declaration "Promoting Action and Policy Dialogue" (19-22 June, Dushanbe).

The ICWC Secretariat organized the roundtable on "Achievement of sustainable development goals and gender mainstreaming challenges of water management and sanitation in Tajikistan". Representatives of the Tajik Ministry of Energy and Water Resources, Land Reclamation and Irrigation Agency, Committee for Nature Protection and the Committee for Women and Family Affairs took part in this event (28 August, Dushanbe).

Source: ICWC Secretariat

Scientific-Information Center of ICWC

Organizational and technical activity

SIC together with other bodies of ICWC was involved in preparation and organization of three ICWC meetings and in fulfillment of ICWC decisions and orders. SIC continued working on the "Implementation Plan on strengthening ICWC activities in key directions". The Center took part in preparation of the Summit of the Heads of IFAS Founder-State, implementation of the adopted Joint Communiqué and fulfillment of the CA country presidents' initiatives. Technical, information and expert assistance was rendered to national and regional organizations through timely provision of relevant materials on their request.

Information and analytical activity

The regional database was populated with information over 2016-2017 (on all provinces of Kazakhstan and Uzbekistan). The databases on the Amu Darya and the Syr Darya basins were updated on ten-day basis (jointly with BWO

⁸ Kuyganiar hydroscheme was built in 1939. The capacity is 1,210 m³/s. The hydroscheme was damaged as a result of strong floods in 2010.

Amu Darya and BWO Syr Darya). Analytical reports on water management situation in the region were prepared for growing and nongrowing seasons.

The reports on water management situation in river basins provided ten-day and monthly data on operation regimes of large reservoir hydroschemes, the data on river channel balances and reservoir water balances (including evaluation of balance discrepancies and water losses), on water supply to Prearalie and the Aral Sea, as well as the information on deviation of actual river water withdrawals from the established water withdrawal limits (to assess water deficit or over-use in the countries and uniformity of water distribution in time and space). The analytical reports are uploaded on the CAWater-Info portal and submitted to ICWC meetings so that managers of water agencies can take appropriate measures.

SIC continued working on forecast assessments of water availability in the Syr Darya and the Amu Darya basins based on the computeraided retrieval of analog-years. The assessment was made by the beginning of the growing season and then updated (adjustment proceeding from the actual water-management situation) against the inflow to upstream reservoirs in the Syr Darya basin (Toktogul, Andizhan, and Charvak reservoirs) and the Amu Darya runoff at Kelif section (upstream of intake to Garagumdatya).

During the year, based on real-time data from the BWO Amu Darya and BWO Syr Darya, river channel balances were calculated and ten-day analysis of water management situation was made in e-format, including short explanatory notes.

Information and publications

In 2018, the Regional Information System on Water and Land Use in ASB (CAWater-IS), analytical tools and models, data and knowledge bases, regional web-resources, including the CA water and environment knowledge portal (CAWater-Info), ICWC, SIC ICWC, and EECCA NWO web-sites, as well as the ASB management model (ASBmm) and the WUEMOCA tool were further developed.

16 publications on water management and law were issued and disseminated in e-format (see "<u>Publications in 2018</u>"). The knowledge base



"Water in Central Asia" was populated with 775 new entries, such as monographs, research papers, manuals, references and other publications (www.cawater-info.net/bk/). The Atlas of water-management and environmental organizations in the EECCA countries was updated.

SIC ICWC publishes a weekly bulletin "Water management, irrigation and ecology in Central Asia". The bulletin contains water, ecology, and energy highlights from Central Asia and all over the world. Ten-day analysis of water-management situation in the Syr Darya and the Amu Darya, as well as information on the past and future conferences, seminars, exhibitions and new publications are provided as well. The bulletin is disseminated every week among ICWC members and all concerned institutions. The bulletins are available on:

www.cawater-

info.net/informationexchange/e-bulletins.htm.

Research and expertise

The following projects and work were undertaken by SIC in 2018:

Completed the research project "Transboundary water management adaptation to climate change uncertainties in the Amu Darya River basin". Published the book "Future of the Amu Darya basin in the context of climate change", with the project findings: analysis of the current interstate water management system and future development in the Amu Darya basin up to 2050, including climate and its impact on water supply and demand; proposals for flow regulation by reservoir hydroschemes; measures to improve efficiency and productivity of water, land, and hydroenergy; proposals for improvement of the legal framework of cooperation. The project results were presented and discussed with stakeholders at the final workshop "Transboundary Water Management Adaptation in the Amu Darya River Basin to Climate Change and

⁹ As part of the Partnerships for Enhanced Engagement in Research (PEER)

Future Challenges: Tools and Recommendations" (January 31 - February 1, 2018, Tashkent).

Continued work on the project "Support to the Network of Russian speaking water management organizations" with the support of UNECE. SIC organized the International EECCA NWO Conference "Water for Land Reclamation, Economic Sectors and Natural Environment in the context of Climate Change" (6-7 November, Tashkent). Collections of scientific papers (volumes 1 and 2) were issued, the Network's web-site and "Atlas of watermanagement and environmental organizations" were updated; the knowledge base of the CAWater-Info portal as one of the sources of knowledge of EECCA NWO was populated.

Work continued on the CAWA (Regional Research Network "Water in Central Asia") Project. In particular, monthly data on irrigated land and actual irrigation water intake was collected at district level of ASB (except for Turkmenistan) over 2000-2017, aggregated to province level and submitted to developers of WUEMoCA for algorithm calibrations; validation of WUEMoCA data against statistics was made; the yield forecast model was adapted for the Fergana Valley conditions and validity of RS-data was checked.

SIC contributed largely to WUEMoCA through the development of indicators implemented via the tool's interface for the whole territory of Central Asia from 2000 to 2018. This allowed getting important information on water use efficiency, including evaluation of water losses and water availability for crops, besides the information on land use. Another important contribution is the development of the User Polygon Tool, which approximates WUEMoCA to user's needs (basin and other water-management organizations) as much as possible - drawing of user-defined areas of interest, inputting of water data (e.g. on water intake at area boundaries) and getting information from the tool on how to use water efficiently within the defined area (what are water losses), what is water availability of irrigated land as compared to crop water requirements (based on climate data processina), where water is not enough or abundant, what is productivity of irrigated land.

As part of the UNRCCA Project "Early Warning Bulletin", four e-bulletins were issued. The bulletins contain information on the actual situation in the Syr Darya and the Amu Darya basins for current month and the forecast for the next month. The Bulletin is a resource, which

provides all the Central Asian states and their international partners with improved capacity to monitor regularly the status of transboundary rivers and warn early of potential issues that require attention. It provides information on daily operation regimes of large hydropower stations in the above basins, the data on energy generation and idle discharges from the stations (if exist) and energy losses. The data on daily river channel balances by river reach (including water losses, amount of regulated flow, etc.), on reservoir water balances, and water supply to the Northern Aral Sea and the Large Aral Sea, as well as on dynamics of water volume, level, and area in the Aral Sea can be found in the Bulletin.

Prepared Water Yearbook: Central Asia and around the Globe, which highlighted key developments and events on water-related subjects in Central Asia and globally over 2017. With the support of UNRCCA, the Yearbook was also translated into English and published in English and Russian.

Started work on "Evaluation of farming activities supported by climate sub-loans in Tajikistan and Uzbekistan" as part of the contract with CAREC under the "Climate Adaptation and Mitigation Program for the Aral Sea Basin" (CAMP4ASB). Over the past period, an evaluation methodology of farming activities supported by sub-loans was developed in terms of their impact on adaptation to climate change and/or carbon footprint. Field visits to pilot areas in Tajikistan and Uzbekistan were arranged and information on the selected sub-projects was summarized. The first version on the report on sub-projects, evaluation results and lessons learnt was drafted and preliminary recommendations were made.

ASBP-4 development

SIC's experts submitted to ICWC members summaries of 20 project proposals for ASBP-4, including 19 regional projects. Suggestions to conduct an inventory of uncompleted and unimplemented projects under ASBP-3 and the ways to organize work for elaborating ASBP-4 were formulated and submitted to EC IFAS. Consultations with EC IFAS were continued on re-launching of work with ADB on "Water Management in the Amu Darya basin in the face of climate change and other future challenges". Detailed analysis of institutional and legal framework of cooperation was completed and proposals for improvement were put forward.

Capacity building and training

In 2018, SIC's experts took part in various training events:

- jointly with the Ministry of Water Resources of Uzbekistan and TIIAME, prepared curricula, lectures and held training for personnel of hydrological and land reclamation field offices, managers of pump station and energy authorities, reservoir management authorities, central administration of the Ministry of Water Resources, managers of district irrigation divisions, and heads of basin irrigation system authorities (October-December, TIIAME);
- 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 in Khorezm, Kashkadarya, Surkhandarya, Fergana, Samarkand, and Syrdarya provinces);
- 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).

SIC's experts:

- finalized the training course in 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 regional Central Asian perspective" to the training course "Hydrodiplomacy, legal and institutional aspects of water resources governance: from the international to the domestic perspective";
- developed web-site of the ICWC Training Center, which contains information on training activity undertaken under umbrella of ICWC, including materials of training courses, training reports, publi-

cations of the Training Center, the data on partners in CA countries and other relevant information.

SIC's experts published 23 papers in different publications. SIC staff improved its qualifications through national and regional courses, workshops, and trainings.

International cooperation

SIC kept maintaining cooperation with embassies, international financing institutions and organizations (WB, ADB, UNESCO, UNDP, OSCE, SDC) and took part in activities of UNECE, World Water Council (WWC), ICID, GWP, INBO and IWRA.

The Memorandum of Cooperation was signed between the International Water Assessment Centre (IWAC) and SIC (30 May, Geneva, Switzerland). The Memo envisages cooperation on research, methodological and technical support to the CA countries in the field of protection and use of transboundary watercourses.

SIC met with the Acting Director of UNESCO Office in Uzbekistan, senior consultant of the Water Partner Foundation (the Netherlands), Swiss Regional Water Advisor in Kazakhstan, representatives of WB, energy mission of EBRD, Head of the UN Regional Centre for Preventive Diplomacy for Central Asia, Director of the ADB's Environment, Natural Resources, and Agriculture Division, and the Ambassador of France in Uzbekistan. Different aspects of cooperation were discussed during the meetings, including water governance and strategic planning in CA.

SIC took an active part in the work of ICWC working groups, preparation of discussion notes, reports, and presentations and in organization of international events and publication of materials.

SIC continued disseminating the Russian versions of materials of WWC and INBO in the EECCA countries (INBO Newsletter, International News of IOWater); maintained the web-site of the EECCA NWO and Russian versions of WWC, INBO, and IOWater.

The Center also keeps playing a coordinating role in the activity of ICID working group for the countries under socio-economic transformation.

Source: SICICWC

3.3.4. Visit of ICWC Delegation to Rogun HPP

On 28 November 2018, upon the invitation of the Tajik side ICWC delegation visited the Rogun HPP, which is under construction. Mr. Anvar Rakhmonov, chief operations officer, presented the constructed facility and provided detailed information on key structures of the HPP.

Currently, 67 companies are engaged with construction and assembly work, including contractors from Russia, Iran, Ukraine, China, and Germany. Mr. Rakhmonov underlined that all activities are based on the design of Rogun HPP developed by the Central Asian branch of the Gidroproekt Institute (Tashkent) in the Soviet period.

The World Bank also highly assessed that design. By present, 52 km of the tunnel have been constructed out of planned 74 km. The cost of completed work, including that done during the Soviet period, is \$3.2 billion. Additionally \$4.5 billion will be required to end the construction.

Headwater. On the 26th of November 2016, the Vakhsh River was dammed. The dam is erected out of 42 million tons of filling material, and the accumulated water volume is 254 million m³. Water is retained by a temporary dam. The construction is planned to be completed by 2027. The design normal reservoir water level is to be achieved by 2032.

Salt dome. The delegation asked about measures taken to protect the salt dome at the bottom of the dam. It is well-known that salt formation is linked to the lonaksh fault, which passes under the upstream fill of the dam. Mr. Rakhmonov explained that the salt dome will be blocked by bored piles and sheet piling. It is also planned to build an additional tunnel for permanent monitoring.

Conveyer system. For filling of the dam and transportation of construction materials to the site, a 9 km conveyer system is constructed. Its capacity is to be 3,000 tons per hour. At present, 5 km of the system has been completed.

Indoor switchgears. Indoor switchgears with gas insulation designed for all six aggregates of Rogun HPP were put into operation on the 16 of November 2018. 220 kV and 500 kV gas insulated switchgears were installed. 220 kV switchgears will be used for internal needs of the enterprise. Electricity will be supplied from the distribution hub to the single energy system













through six 500 kV transmission lines. On the 16th of November, a 500 kV Dushanbe-Rogun transmission line was put into operation. Installation of the equipment bought at \$50 million, including from the German Siemens, was started in February and completed by November 2018.

Escape. The initial project design planned escape for a flood flow of 5,400 m³/s; now the maximum discharge of spillway tunnels is increased to 7,800 m³/s in total.

Turbine hall. The first aggregate (No.6) of the Rogun HPP was launched on the 16th of November 2018. Now, it operates on temporary blade wheel and generates 100-115 MW. Aggregate No.5 is planned to be launched in April 2019. These two aggregates will operate at lower head. Six aggregates, 600 MW each, are to be installed at the hydropower plant. All six aggregates are to be commissioned in December 2024.

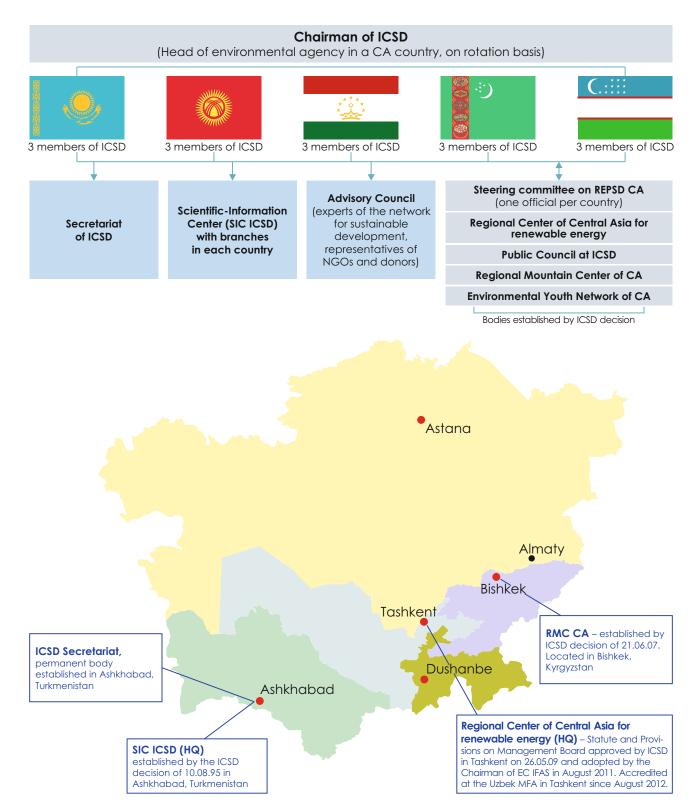
Detailed:

http://sic.icwc-aral.uz/releases/eng/337.htm

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.



Activities of the ICSD's Executive Bodies in 2018

The work was continued on further enhancement of the Commission's activities, solution of regional environmental issues, updating of the Regional Environmental Program for Sustainable Development in Central Asia (REPSD CA) for the five CA countries, and development of ASBP-4.

Updating of REPSD CA

Active efforts were taken to develop the REPSD CA:

- Within the framework of the <u>Central Asia</u> <u>Climate Change Conference 2018</u>, a session was held to discuss a draft Framework guidelines for the promotion of country processes on REPSD CA and establish Regional Working Groups (24-25 January, Almaty);
- Requests were sent to the CA countries to establish a National Working Group, including the Terms of Reference for incountry consultations (March);
- The first round of national consultations in Turkmenistan, Kazakhstan and Tajikistan (April-May) and the Coordination Meeting of the Second Central Asian International Environmental Forum (5-8 June, Tashkent) were held;
- A working meeting of the heads of environmental agencies in the Central Asian countries was organized to discuss topical issues within the framework of IFAS-ICSD (August 22, Turkmenbashi) as well as a Coordination Meeting of the Regional Group members, who agreed on the REPSD CA plan for 2019 and the tentative schedule of working meetings (December 10-11, Almaty).

Development of ASBP-4

Two project proposals on institutional and environmental directions of ASBP-4 were drafted and submitted to the National Working Group members in Turkmenistan for consideration and inclusion into the Program (December).

United Nations Framework Convention on Climate Change (UNFCCC)

A representative of ICSD attended the 24th Session of the Conference of the Parties (COP24) to UNFCCC (2-14 December, Katowice, Poland), the 48th session of the UNFCCC Subsidiary Bodies and the sessions of the Ad Hoc Working Group on the Paris Agreement (30 April-9 May, Bonn, Germany; 4-9 September, Bangkok, Thailand).

Regional and International Cooperation

ICSD representatives actively participated in regional and international events: Regional Forum on Sustainable Development for the UNECE Region (1-2 March, Geneva); Regional Meeting on strengthening intersectoral cooperation on water resources management and fostering the role of water to promote sustainable development and the implementation of Agenda 2030 (12-13 July, Almaty); 7th and 8th Meetings of the EU-Central Asia Working Group on Environment and Climate Change (<u>6-7 February</u>, Brussels, Belgium; <u>7-8 June</u>, Tashkent, Uzbekistan); activities under the Central Asia Nexus Dialogue Project: Fostering Water, Energy and Food Security Nexus Dialogue and Multi-Sector Investment (Nexus) (7-9 September, Almaty; 5-6 December, Ashgabat); 22nd Session of the Working Group (WG) on Water, Energy and Environment of the United Nations Special Program for the Economies of Central Asia (SPECA) (9 October, Astana), etc.

Capacity Building and Education

ICSD experts participated in:

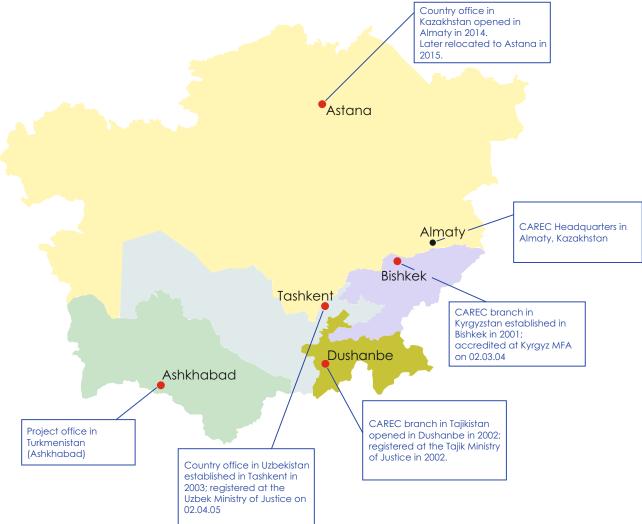
- Webinars for water managers of Turkmenistan and academic staff of TIIAME on the "Use of collector-drainage water in irrigated agriculture" (20 November) and "Water-saving technologies and effective methods of irrigation water use applicable to the Uzbek and Turkmen conditions" (December 27) organized at the premises of the CAREC information and training class at the National Institute of Deserts, Flora and Fauna of Turkmenistan.
- A series of workshops on climate change and climate forecasts (September, Ashgabat); International Workshop "Successes achieved in environmental protection and international cooperation in the course of the year entitled "Turkmenistan – in the heart of the Great Silk Road" (6 December, Ashgabat);
- Lectures delivered by Professor of International Law S. Vinogradov at the Academy of State Service at the President of Turkmenistan (20 December, Ashgabat).

Source: Secretariat, ICSD

3.5. Regional Environmental Center for Central Asia (CAREC)



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 five Central Asian states.



In 2018, CAREC continued enhancing cooperation to improve the environment in Central Asia. Together with international partners, state authorities, local governments, civil society of the countries in the region, multiple important national and regional initiatives and events were launched in the field of environmental protection and sustainable development.

Regional and International Cooperation

The year was full of intensive and productive efforts in terms of partnership initiatives: ASBP-4 development process launched jointly with EC IFAS; updating of REPSD CA undertaken together with EC IFAS, ICSD, EU, GIZ and UNEP.

CAREC continued supporting ED IFAS in Kazakhstan in promotion of water education reforms. The drafted list of occupational standards was submitted to the Kazakh Ministries of Labor and Social Protection and of Agriculture to pass all required state procedures so that to be integrated into the formal education process.

Major events were organized on water governance, climate change, and regional cooperation enhancement to reach sustainable development in CA:

Central Asia Climate Change Conference 2018 within the framework of the Cli-

mate Adaptation and Mitigation Program for Aral Sea Basin (CAMP4ASB) and as a continuation of the World Bank's initiative for climate change knowledge and information exchange in Central Asia (24-25 January, Almaty). It brought together more than 250 representatives from governmental and non-governmental agencies, academia, development partners, multilateral development banks, civil society and business companies that work in the area of climate change adaptation in the region and beyond. The participants discussed different dimensions of adaptation in the region -Policy, Research, Best practices, Climate Finance and Climate Information Services. Discussions and information exchanges will contribute to new directions for further climate research, climate policy framework, promote integrated approaches and open routes to new partnerships for climate resilient development in the region;

a regional meeting of representatives of the MFA's and parliaments of the countries of CA and Afghanistan organized with the support of the Stockholm International Water Institute (SIWI) to identify ways for further cooperation in the field of water diplomacy (26 January, Almaty). For the first time, representatives of the Islamic Republic of Afghanistan participated in the event. During the meeting, the participants presented analysis of proposals and expectations gathered during the work of the platform for interaction of representatives of the MFAs and parliaments of CA countries over 2016-2017, as well as the draft roadmap of cooperation and the draft work plan for 2018-2020, which were developed on the basis of a series of meetings: both at the national and regional levels. In addition, the participants also talked



- about the results of the national consultations held in the countries, during which suggestions were made for further work of the site;
- Second Central Asian International Environmental Forum on the theme "Strengthening Cooperation on Environment and Sustainable Development in Central Asia" (5-8 June, Tashkent);
- first Small Basin Councils Forum of Central Asia and Afahanistan organized in Bishkek (26-27 November, Bishkek). The event brought together 140 representatives of the Small Basin Councils, relevant ministries and departments of the region, as well as international organizations and projects to exchange ideas and experience within the framework of the USAID-CAREC Smart Waters project. During the Forum, an exhibition of project areas, small transboundary rivers of the region, where the project is executed was held. Smart Waters project specialists and representatives of the SBC presented the progress of work and current challenges.

Promoting cooperation on small transboundary rivers

Since 2012, CAREC, with the support of international development partners (USAID, GIZ, Ministry of Economic Affairs and Climate Policy of the Netherlands, etc.), has been working on establishing Small Basin Councils in the CA states and Afghanistan. By present, 13 Small Basin Councils have been established and become operational.

In 2018, as part of the USAID-financed Smart Waters Project, CAREC continued activities related to implementation of basin planning on small transboundary rivers in the region. The first officially recognized small basin councils were established in Turkmenistan (on the Murahab River) and Uzbekistan (on the Padshaata River). Implementation of this component in Turkmenistan is based on the new national Water Code, the updated version of which entered into force in 2016 and which, for the first time, outlined the principles of integrated water resources management, including basin management. As to Uzbekistan, the established Basin Council is the first and pilot one and will serve as an example, based on which decisions can be made on changes in relevant leaislation.

In 2018, CAREC issued a number of publications (for more details see Section "Publications in 2018").

Source: CAREC







Bilateral Water
Cooperation Between
the Countries
of Central Asia

4.1. Kazakhstan – Kyrgyzstan

Cooperation within the Chu-Talas Water Commission (CTWC)

Bilateral water relations between Kazakhstan and Kyrgyzstan are regulated by the Agreement on the Use of Water Management Facilities of Intergovernmental Status on the Chu and Talas Rivers (21 January 2000). The Chu-Talas Water Commission (CTWC) is a joint body, which is to ensure the joint operation of the water facilities of interstate use and estimate operational costs required for their safe and reliable operation.

Meetings. CTWC held 24 meetings from its establishment in 2006 up till 2018.

In 2018, at its 24th meeting, CTWC summarized the results of the work undertaken on water management facilities of interstate use at the Chu and Talas rivers in 2017; discussed operation modes of the structures for the growing season of 2018; considered amendments and additions to the Agreement, as well as the possibility of the construction of a reservoir along the Aspara River and the second line of the OCHK-2 canal. Additionally, progress of the Working Groups on environmental protection and on adaptation to climate change and long-term action programs and implementation of international projects were reviewed (27 February, Bishkek).

The <u>international conference</u> dedicated to the 90^{th} anniversary of the first protocol on sharing the Talas River between the Kyrgyz Republic and the Republic of Kazakhstan was held on the 27^{th} of June in Taraz.

Working Groups. In 2018, the Working Group on environmental protection established in 2015 at the CTWC Secretariat held two meetings. At the 5th meeting of the Working Group, the parties agreed to conduct monitoring of the transboundary Chu, Kara-Balta and Talas Rivers at preliminary agreed 16 points on 17 hydrochemical indicators and share information on water quality (23 August 2017). During the 6th meeting of the Working Group, it was decided to consider inclusion of pesticides in the list of indicators to be analyzed for the following comparative analysis of the results in laboratories of Kazakhstan. Applicability of water quality assessment criteria for the agreed sampling 2019 was also discussed (16 November, Bishkek). At the 7th meeting, the Working Group summarized the results of water quality monitoring. The Group decided to develop a procedure for monitoring and introduce it to the next meeting of the Commission (13 December, Taraz).

The Working Group on adaptation to climate change and long-term action programs gathered for several meetings. At its 3rd meeting, the participants discussed the vision and objectives of the Strategic Action Program, opportunities and needs for co-financing and for critical analysis of implementation (18 January, Bishkek). The 4th meeting was combined with project workshops of the Commission (12 December, Taraz).

Projects. Implementation of the Enabling transboundary cooperation and integrated water resources management in the Chu and Talas River Basins (GEF/UNDP/UNECE) project and the UNECE "Enhancing climate resilience and adaptive capacity in the transboundary Chu-Talas basin" project funded by the Government of Finland is ongoing. The training sessions "Internet resources for sharing data and information: case-study of the Sava Commission's hydrometeorological and geographic information systems" (16-17 January, Bishkek) and "Transboundary river basin management planning using as an example the Sava River basin opportunities and solutions for the Chu and Talas river basins" (29-30 March, Taraz) were held. Cooperation with the International Sava River Basin Commission is maintained in the sharing of experience in the field of legal support and implementation of basin management plans and best practices of joint management, as well as in exchange of hydrological data and information on water quality.

Source: Head of the Kazakh Party of the CTWC Secretariat

4.2. Kazakhstan – Turkmenistan

High-Level Meetings

The Presidents of Kazakhstan and Turkmenistan met during the Fifth Caspian Summit (12 August, Aktau). The Head of Kazakhstan noted that the two nations are linked by history and the bonds of brotherhood. Mr. Berdymukhamedov, in turn, expressed his thanks for the opportunity to participate in the Summit and noted the excellent organization of the event. "Today's

meeting has brought a new dimension to our relations, which evolved over the centuries. At the present, we have every opportunity to further expand our bilateral cooperation," the President of Turkmenistan said. Finally, the parties discussed the agenda of a meeting on the Aral Sea problems, which was to be held at the end of August in Turkmenistan.

Source: www.akorda.kz

4.3. Kazakhstan – Tajikistan

High-Level Meetings

The President of Tajikistan participated in the Working (Consultative) Meeting of the Heads of Central Asian States (15 March, Astana). The President of Uzbekistan, President of Kyrgyzstan, and the Chairman of the Mejlis of Turkmenistan also attended the meeting.

The Head of Tajikistan noted that the region has enormous untapped potential for increased and deeper trade and economic relations. Integrated and efficient water and energy use was mentioned as one of the main elements of cooperation between the Central Asian states. It is a key factor of prosperity and sustainable development in the region. In this context, the President Emomali Rahmon noted: "In my

address to the United Nations and in my annual messages to the national parliament I have repeatedly stated that Tajikistan has never caused and will never cause the water-related problems to its neighbors. Today, I want to stress once again that we will never leave our neighbors without water. I believe that open dialogue, mutual understanding and constructive cooperation would contribute to the achievement of our objectives in this regard." The head of state has expressed his interest in developing regional partnerships for efficient and equitable use of water resources. According to him, the existing hydropower facilities would provide a solution to the region's energy and water problems.

Source: www.president.tj/ru/node/17287

4.4. Kazakhstan – Uzbekistan

High-Level Meetings

The President of Kazakhstan met with the President of Uzbekistan. During the meeting, the parties underlined that their interstate relations were actively developing, and the agreements reached by the states were implemented consistently thanks to the dialogue maintained at the highest level (March 15, Almaty).

Source: https://president.uz/ru/lists/view/1570

Meetings of the Working Group on Water Management

In November 2016, a joint Kazakh-Uzbek Working Group was set up to develop proposals for enhanced bilateral water cooperation. The Uzbek side of the Working Group is headed by Sh.Khamraev, Minister of Water Management

of Uzbekistan, while Mr.Ye.Nyssanbayev, Vice-Minister of Agriculture leads the Kazakh side.

The Working Group gathers to discuss challenging issues related to water use in middle and lower reaches of the Syr Darya River and in other transboundary basins in the territories of the both countries and suggest ways for further improvement of bilateral cooperation.

As of 1 January 2019, 5 meetings of the Working Group were held. At the 5^{th} meeting, the parties discussed fulfillment of the decisions made at the previous meeting, the draft bilateral water agreement, and coordination of actions during the growing season (3-4 May, Kyzylorda).

Source: Ministry of Water Management of the Republic of Uzbekistan

4.5. Kyrgyzstan – Tajikistan

High-Level Meetings

On the sidelines of the Meeting of the Council of Heads of State of the Shanghai Cooperation Organization, the President of the Republic of Tajikistan Emomali Rahmon had a meeting with the President of Kyrgyzstan Sooronbay Jeenbekov to discuss the current state and future prospects of bilateral good-neighborly relations (9 June, Qingdao, China). It was noted that Tajikistan and Kyrgyzstan have a common position in solving global and regional issues and pay special attention to the development of bilateral cooperation in the field of international and regional security.

The Heads of State exchanged their views on importance of further expansion of bilateral trade and economic cooperation, including boosting of trade turnover between their countries, unfolding of great potential of cooperation in water and energy, timely implementation of the ambitious regional project – CASA 1000, and setting up of Tajik - Kyrgyz Intergovernmental Commission on bilateral matters.

Source: www.president.tj/en/node/17755

4.6. Kyrgyzstan – Turkmenistan

High-Level Meetings

The President of Kyrgyzstan Mr. Sooronbay Jeenbekov paid a state visit to Turkmenistan (23-24 August). In the course of negotiations, a particular focus was put on strengthening of regional cooperation, including the solution of water and energy issues in Central Asia. An agreement has been reached to promote regional consensus on the basis of equality, mutual respect and consideration of the interests of the partners.

As a result of negotiations, the Presidents signed a number of bilateral documents, including:

Action Plan for development of bilateral agricultural cooperation within the framework of the "Memorandum of Understanding between the Ministry of Agriculture and Water Resources of Turkmenistan and the Ministry of Agriculture, Food Industry and Land Reclamation of the Kyrgyz Republic on cooperation in the field of agriculture" signed on August 5, 2015;

- Agreement on cooperation in prevention and elimination of emergencies;
- Declaration on strategic partnership, deeper friendship and trust between Turkmenistan and the Kyrgyz Republic, according to which in water and energy sector:

The Parties recognize the importance of strengthening bilateral and regional cooperation on the rational and integrated use of water and energy resources in Central Asia, taking into account the interests of all states in the region. To this end, the Parties will hold regular consultations with the purpose of developing mutually beneficial long-term sustainable mechanisms in this area.

The Parties shall develop cooperation in the field of energy, including for implementation of joint hydropower projects.

Sources:

http://tdh.gov.tm/news/tm/articles.aspx&article14174&cat26,

uzbekistan.tmembassy.gov.tm/en/news/16198

4.7. Kyrgyzstan – Uzbekistan

High-Level Meetings

In 2018, the meetings of the Council of Heads of the Border Regions in Uzbekistan and Kyrgyzstan, chaired by the Prime Ministers of the two countries, were held (March, Fergana; December, Osh). The first meeting of the Inter-Parliamentary Cooperation Commission was held in May.

Источник: https://president.uz/en/lists/view/2226

Meetings of the Working Group on Water Management Issues

The Group worked within the framework of the Interagency Agreement on the establishment of a joint bilateral water commission to find constructive solutions for water and energy issues.

Other water-related arrangements

Uzbekistan and Kyrgyzstan have concluded an agreement on the export of electricity in the amount of 550 million kWh from December 2017 to March 2018. According to kabar.kg, in January-September 2018, the export of electricity to Uzbekistan amounted to 754 million kWh at a price of 2-2.4 cents for a total sum of US \$16.2 million.

4.8. Tajikistan – Turkmenistan

High-level meetings

The President of Tajikistan Emomali Rahmon met with the President of Turkmenistan Gurbanguly Berdymukhamedov on the sidelines of the Summit of the Heads of IFAS Founder-States, where they discussed the ways of improving cooperation under umbrella of IFAS and its institutional and legal frameworks (24 August, Turkmenbashi). The Presidents considered it important to strengthen cooperation with financial institutions and donors for addressing

regional problems. Both sides expressed their satisfaction with the process of constant high-level dialogue and the state of actively developing relations between the two countries. The Tajik–Turkmen cooperation in the fields of transport, energy, light industry, processing, agriculture, industry, trade, air communication, science, culture, as well as healthcare and tourism was commended as priority of bilateral relations.

Source: http://www.president.tj/en/node/18241

4.9. Tajikistan – Uzbekistan

High-level meetings

State Visit of the President of Uzbekistan to Tajikistan

The President of the Republic of Uzbekistan paid a state visit to Tajikistan, where the parties discussed the development of bilateral political, trade and economic, investment, financial, transport and communication, water and energy, touristic, cultural, humanitarian and interregional cooperation, as well as facilitation of travels between the countries (9-10 March). The issues of cooperation through regional and international institutions, regional security and stability, and efficient counteraction to modern challenges and threats were also addressed.

The Presidents have stressed that one of key factors of prosperity in Central Asia is the integrated use of water and energy resources, taking into account the interests of all states in the region. The importance of open dialogue, mutual understanding and constructive cooperation for searching mutually acceptable, fair and rational solutions was particularly underlined.

The parties have expressed their mutual interest in developing regional partnership in the sphere of efficient and equitable water use and stressed the importance of existing hydropower facilities for Central Asia, and those under construction, in order to solve water and energy problems.

In this context, the Uzbek side has expressed its readiness to consider the possibility of participating in the construction of hydropower facilities in the Republic of Tajikistan, including the Rogun Hydroproject, based on the universally recognized international norms and standards for the construction of such facilities.

The Heads of State stressed the need to improve the legal framework of transboundary water use in Central Asia, taking into account the interests of all states in the region.

Additionally, 27 documents were signed to further develop cooperation in the spheres of trade, economy, investment, finance, transport and transit, agriculture, water and energy, etc. Those documents include among others:

- Joint Statement of the President of the Republic of Uzbekistan Shavkat Mirziyoyev and the President of the Republic of Tajikistan Emomali Rakhmon on strengthening friendship and good-neighborliness;
- Agreement on particular segments of the Uzbek-Tajik State border;
- Agreement between the Government of the Republic of Uzbekistan and the Government of the Republic of Tajikistan on inter-regional cooperation;
- Cooperation Agreement between the Government of the Republic of Uzbekistan and the Government of the Republic of Tajikistan on operation of the Farkhad dam, according to which the land surrounding the Farkhad HPP shall be recognized as the Tajik territory, but that the facility itself shall remain in property of Uzbekistan. Security for the site shall be provided by Tajikistan, while maintenance shall be the responsibility of Uzbekistan;
- Agreement between the Government of the Republic of Tajikistan and the Government of the Republic of Uzbekistan on cooperation in the field of prevention and elimination of emergencies;
- Agricultural cooperation agreement between the Ministry of Agriculture of the Republic of Tajikistan and the Ministry of Agriculture of the Republic of Uzbekistan.

State Visit of the President of Tajikistan to Uzbekistan

The President of the Republic of Tajikistan paid a state visit to the Republic of Uzbekistan on 17-18 August. The Presidents have reiterated that integrated water and energy use, which takes into account the interests of all the countries in the region, is vital for sustainable development, well-being, and prosperity of Central Asia. Open dialogue, enhanced mutual understanding and constructive cooperation, as well as the search for mutually acceptable, equitable, and reasonable solutions are important.

The Parties have agreed to consider joint construction of two hydropower stations, with the total capacity of 320 megawatt in the Tajik area of the Zarafshan River. The Heads of State charged the Intergovernmental Commission for Trade and Economic Cooperation with studying the potential use of freshwater in Lake Sarez for drinking purposes in the both countries.

The Parties have positively assessed the results of the International High-Level Conference on the International Decade for Action "Water for Sustainable Development, 2018-2028" and expressed their willingness to actively participate in implementation of the Final Resolution and other documents of the Conference.

The Presidents have noted with satisfaction the unanimous support and adoption of the UN General Assembly Resolution on "Strengthening regional and international cooperation to ensure peace, stability and sustainable development in the Central Asian Region", which has been developed jointly and presented by the Central Asian states in June 22, 2018. The parties have expressed their intention to continue promoting joint regional initiatives on the international arena.

A number of documents have been signed concerning cooperation in the field of industry, standardization and certification, border crossing, recognition of graduation documents, geodesy and geology, agriculture, culture and other spheres. Those include among others:

- Joint Statement of the President of the Republic of Tajikistan and the President of the Republic of Uzbekistan;
- Strategic Partnership Agreement between the Republic of Tajikistan and the Republic of Uzbekistan.

Other meetings

The President of Tajikistan met with the President of Uzbekistan on the sidelines of the events dedicated to the 20th anniversary of Astana as a capital of Kazakhstan (July 6, Astana). During the meeting, the Parties have discussed issues related to the development and strengthening of bilateral cooperation in all spheres of mutual interest. The President of Tajikistan highly evaluated the results of the state visit of the President of Uzbekistan to Tajikistan in March 2018. The Parties have expressed willingness to expand fruitful ties in all spheres and unfold untapped opportunities for the benefit of the both nations.

Sources: www.president.tj, https://president.uz

Meetings of the Working Group on integrated transboundary water use in Central Asia

As part of the state visit of the President of Uzbekistan Mr. Sh. Mirziyoyev to the Republic of Tajikistan, an Uzbek-Tajik Working Group on integrated use of water from transboundary rivers in Central Asia was established (9-10 March 2018).

During the first meeting of the Working Group, the Parties expressed their readiness to actively cooperate in the field of transboundary water management, jointly operate irrigation systems and hydraulic structures, exchange relevant information and continue constructive dialogue, taking into account the interests of the both parties (6 June, Tashkent).

During the second meeting of the Working Group, the Parties exchanged views regarding enhanced bilateral water cooperation between Tajikistan and Uzbekistan (28 November, Dushanbe). The importance of the Working Group's activities in addressing existing bilateral issues on the rational use of water resources in

the Amu Darya and the Syr Darya basins and the joint operation of the Farkhad Dam under the Agreement between the Governments of Tajikistan and Uzbekistan on operation of the Farkhad Dam was underlined as well.

Source: Ministry of Water Management of Uzbekistan

Other water-related arrangements

In 2018, Uzbekistan and Tajikistan resumed energy supplies between the countries. From April to September 2018, 1,480 billion kWh of electricity was exported from Tajikistan to Uzbekistan (Surkhandarya province) at a price of 2 cents/kWh. Uzbekistan, in turn, supplied electricity to the Sogd province. 2 billion kWh is planned to be exported for the South of Uzbekistan from April to October 2019.

4.10. Turkmenistan – Uzbekistan

High-Level Meetings

State visit of the President of Turkmenistan to Uzbekistan

In the course of the state visit of the President of Turkmenistan to Uzbekistan, special attention was paid to water and energy issues in Central Asia (23-24 April). The Parties have agreed to intensify joint efforts to further improve IFAS activities. Turkmenistan considers it necessary to strengthen bilateral relations with the Republic of Uzbekistan in the water field. The Heads of State have underlined that transboundary water is the common good for the Central Asian nations and reasonable and equitable use of these resources is essential for the well-being of millions of people, stability, and prosperity in the region. For continuous development of cooperation in this direction, Turkmenistan proposed to establish a joint Intergovernmental Commission on Water-Related Issues. The draft Agreement between the Government of the Republic of Uzbekistan and the Government of Turkmenistan on the joint Uzbek-Turkmen Intergovernmental Commission on Water-Related Issues is under development. It is also necessary to consider the possibility of developing a bilateral agreement on the rational use of the Amu Darya. All these measures will bring the Turkmen-Uzbek dialogue to the qualitatively new level.

As a result of negotiations, 17 documents were signed, including:

- Joint Statement;
- Intergovernmental Agreement on Interregional Cooperation.

Sources: http://turkmenistan.gov.tm, https://president.uz

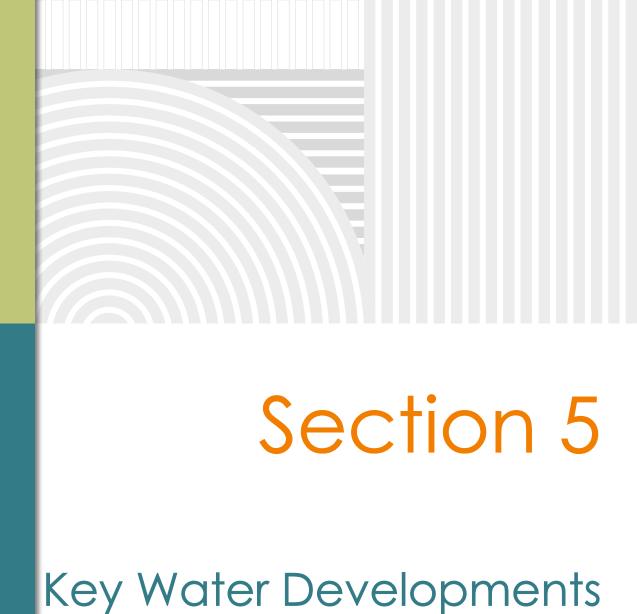
Other meetings

Shortly before the Summit of the Heads of IFAS Founder-States, the Presidents of Uzbekistan and Turkmenistan held a meeting to discuss the current state and future prospects of bilateral cooperation (August 24, Turkmenbashi). The Parties noted that the state visit of the President of Turkmenistan to Uzbekistan in April has given a new impetus to multifaceted relations of the countries.

Tripartite Working Group on Water Management Issues

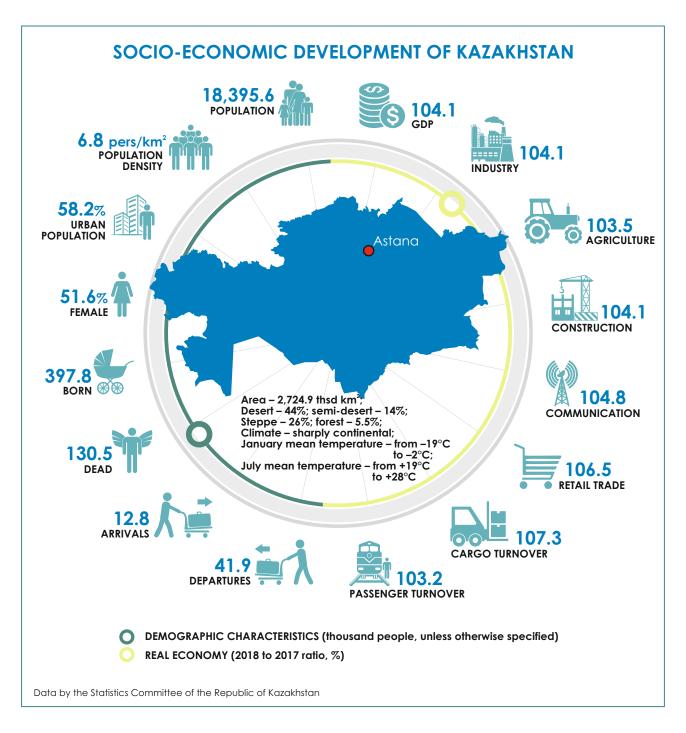
Water cooperation between Uzbekistan and Turkmenistan is maintained through the Trilateral Working Group, which also includes BWO Amu Darya. The Parties constructively, in the spirit of mutual trust and respect for each other's interests, address issues related to sharing of watercourses in the Amu Darya basin. As of 1 January 2019, the Group held 192 meetings, including 11 meetings in 2018. At these meetings, water managers of the Amu Darya lower reaches addressed the water allocation matters.





Key Water Developments in the Countries of Central Asia

5.1. Kazakhstan



General Information

Water resources. Due to its geographical location, water resources in Kazakhstan are distributed unevenly. There are 8,500 rivers in the country, and the major ones are Irtysh, Ishim, Ural, Syr Darya, Ili, Chu, Tobol, etc. Glaciers are the main sources of rivers. There are 48,000 large and small lakes. The major lakes are the Caspian Sea and the Aral Sea. Balkhash, Zaisan, and Alakol are the largest lakes.

The unit water supply in Kazakhstan is 37,000 m³/km² or 6,000 m³ per capita a year. The total river water resources are 101 km³, of which 57 km³ are formed on the territory of Kazakhstan. The rest of the water is coming from neighboring countries: Russia – 8 km³; China – 19 km³; Uzbekistan – 15 km³; and Kyrgyzstan – 3 km³.

Water resources management is implemented by the Committee for Water Resources of the Ministry of Agriculture of the Republic of Kazakhstan.

The territorial sub-divisions administered by the Committee for Water Resources of the Ministry of Agriculture of the Republic of Kazakhstan include:

- 1. Republican State Agency "Aralo-Syr Darya basin inspection on water use regulation and protection";
- Republican State Agency "Balkhash-Alakol basin inspection on water use regulation and protection";
- 3. Republican State Agency "Yertisky basin inspection on water use regulation and protection";
- Republican State Agency "Esil basin inspection on water use regulation and protection";
- 5. Republican State Agency "Nura-Sarysus basin inspection on water use regulation and protection";
- 6. Republican State Agency "Tobol-Turgai basin inspection on water use regulation and protection";
- 7. Republican State Agency "Zhaiyk-Caspian basin inspection on water use regulation and protection";
- 8. Republican State Agency "Shu-Talas basin inspection on water use regulation and protection".

Latest Developments in Legislation and Public Administration

Amendments to Land Regulation. The Parliament of Kazakhstan has approved the amendments to the legislation on land regulation in the second reading. The maximum sizes of agricultural lands which can be given in lease to Kazakh people have been established. According to the new amendments, foreign companies and individuals will have no rights to lease a piece of agricultural land even for a temporary use. Kazakhstan enterprises will have no right to lease a piece of agricultural land if they have even minimum percentage of foreign share. Agricultural lands will be provided on a competition basis only. Also, a new procedure on withdrawal of land for state use is stipulated.

The Government of Kazakhstan has adopted a Resolution on denunciation of some

international agreements (PP RK 373 of 22 June 2018) between the Governments of Kazakhstan and Kyrgyzstan; and also between the Governments of Kazakhstan, Kyrgyzstan and Uzbekistan on using of fuel and water and energy resources of the Naryn-Syrdarya reservoir cascade.

Amendments have been made to the administrative and territorial structure of South Kazakhstan province (SKP). As a result, at present, it embraces a newly created Zhetysai district with the administrative center of Zhetysai city; Maktaral district with the administrative center in Myrzakent settlement through division of Maktaaral district of SKP; Saryagashskiy district with the city of Saryagash as an administrative center, and Kelesskiy district with the administrative center in Abbay settlement through division of Saryagash district of SKP.

Water Sector

Practical work under the second phase of the "Syr Darya Control and the Northern Aral Sea Project" has been started. The Project will be implemented in two stages for the state budget funds and the WB loan. As a result of the Project, it is expected that socio-economic development and living standards of population (especially, in rural areas) will be improved; and the Northern Aral Sea will have more water inflow through the reduction of losses caused by poor conditions of irrigated land.

Reconstruction of the Arnasay dam has been completed. Previously, excessive water was discharged into the Arnasay depression through the dam. The dam is located in the south of the Shardara reservoir and now blocks the Arnasay depression. Construction of 36-kilometre dam and road made it possible to connect Shardara and Maktaaral districts.

In Mangistau province, farmers are moving towards drip irrigation systems; 30% of its equipment cost is subsidized by the state. By 2021, it is expected that all farms in the province will use drip irrigation. In Shardara district of Turkestan province, drip irrigation will allow doubling cotton production, which was 28.4 centner/ha on average in 2017. In total, as of 15 August, the area of the republic where water-saving irrigation technologies are used was 183.4 thousand ha (drip irrigation - 82.85 thousand ha, sprinkling – 100.53 thousand ha) or 12.7% of all irrigated area.

Floods

287 houses were flooded in Eastern Kazakhstan province in March as a result of ice melting on the Irtysh and the Syr Darya rivers. More than 600 plots of land have been damaged by high water. Based on approximate calculations, floods in the province have caused losses for the amount of 3.2 billion tenge.

In February, in Northern Kazakhstan province 127 settlements were at risk of waterlogging. This waterlogging was mainly caused by failure to pass excess water through pipes (culverts) during ice melting. Media reported that 600 million tenge have been provided for prevention of emergencies.

In Western Kazakhstan province, 1.3 billion tenge have been allocated to mitigate consequences of emergencies caused by spring flooding. Near Peremetnoe settlement of Zelenov district, the dam, which was restored in 2017, has collapsed. Under the warranty commitments, the contractor was legally obliged to restore the dam. Based on the data of the Emergency Committee of the Ministry of Internal Affairs of the RK, six districts of Almaty province were flooded by melt water. More than 300 homesteads were damaged and some districts declared the state of emergency. About 1,000 people were evacuated. More than 1 billion of tenge was allocated for flood management activities, as well as for construction of trenches, canals, ditches, drainage systems and purchasing of equipment and machines.

In February in **Kyzylorda province**, the Syr Darya broke a protection embankment. As a result, more than 2,000 ha of agricultural land used for growing rice (500 ha) and as pastures and hayfields was flooded.

Agriculture

Based on the data of the Kazakh Ministry of Agriculture, in 2018 the total crop area in the country amounted to 22 million ha. It is 170,000 ha or 0.6% more than in 2017. 22 million tonnes of grain have been collected considering the crop productivity of 15.1 centner/ha. This is 759.9 ton or 3.4% more than the last year. For 11 months, the agricultural production has been increased by 2.9%; the growth in cattle breeding has reached 3.9%; and that of crop production has reached 2.3%. Export of agricultural products from January to September was more than \$2 billion, including processed

products for the amount of \$780 million. 17,500 tons of beef (given the plan of 15,000 tons) were exported for the period of 11 months. In general, the amount of attracted investments is increasing. For the period of 10 months, the amount of the attracted investments was 18.4% in agriculture capital assets and 33.7% in food production.

With the systemic measures, the mechanisms and sizes of **state support** are developing and increasing. Based on the request of the Head of State, annually, not less than 100 billion tenge will be allocated additionally for the State Program. Also, 200 billion tenge will be provided for resolution of issues related to affordable lending under the priority agroindustry projects. Thus, the size of state support will be doubled.

In 2018, the Ministry of Agriculture of the RK renewed **subsidizing** of interest rates under the fixed assets loans, as well as the agricultural equipment and livestock leasing. As a result, for the period of 10 months, 2,752 pieces of equipment for the amount of 50 billion tenge have been leased out. As an example, in 2017 the leased out equipment amounted to 40.2 billion tenge, which is 19.8% less than in 2018. On the whole, in 2018 about 60 billion tenge were allocated for implementation of leasing projects.

According to the Ministry of National Economy of the RK, from January to November 2018 gross production of agriculture, forestry and fishery amounted to 4,167.6 billion tenge, which is 2.9% more than in the same period in 2017.

Mahambet district of Atyrau province started to grow green mass for cows using the hydroponics system. The system will allow producing approximately 10 tons of green mass a day. The green mass is generated from barley, which is grown under the certain temperature using the hydroponic method allowing increasing the barley mass 14 times. Farmers say that milk production increases by one third after feeding the cattle with this green mass.

It is planned to reduce the number of research institutes which belong to agroindustrial complex in Kazakhstan. As Mr. A. Evniev, the Vice-Minister of Agriculture of the RK said, the number of research institutes should be reduced, following the example of international practice where knowledge hubs are more popular.

To improve the quality of agricultural education, the standards of world's leading universities are introduced in three agricultural universities

based on the example of the Nazarbaev University. At the same time, franchises of international universities are attracted. Cooperation with the Netherlands' Wageningen University, as well as the American University of California-Davis and the Chinese Zhejiang University was started. On an annual basis, more than 100 students are to be graduated under the franchise program with international universities.

Energy

New hydropower stations are built in Kazakhstan. In summer 2018, the construction of new biggest 18 MW HPP consisting of 5 small stations was started in Zhualy district of Zhambyl province. The HPP will have modern Austrian equipment and the whole process of work will be totally automated. The station will be put into operation in the first quarter of 2019.

Renewable energy is getting more popular in Kazakhstan. Solar power station (SPS) "Burnoe", the biggest SPS in CIS, with the capacity of 100 megawatt, was built together with the British partners in Zhambyl province. A solar power station with the capacity of 1 megawatt and a wind power mill with the capacity of 5 megawatt have been put into operation in Almaty. The first project of the SPS which uses locally produced solar panels (Astana Solar company) was built on 36.05 ha (capacity -2 MW) in the Batyr village of Munalinskiy district, Manaistausk province. As part of the program on watering of pastures, implemented in Kazakhstan upon the request of the Head of State, at present, the farmers start to use green technologies, including solar batteries.

Ecology and the Environmental Protection

For the **improvement of environmental situation** in lake Balkhash the Global Environmental Facility has allocated \$2 million.

A mobile application for **monitoring of out-side air quality – AirKZ** – was launched all over Kazakhstan. The application provides the data on 46 settlements and 84 ecological stations. Using this application, the users can find the needed stations themselves; also the application can locate the nearest station using geolocation. The application shows basic indicators of contaminants in the air at the chosen location.

Kazakhstan has become one of the most toxic states in Central Asia, being in the list of top ten toxic countries of the world. The assessment was made by British organization "The EcoExperts", which analysed the data on 135 countries based on 5 factors of environment: energy consumption per capita; CO₂ emissions from fuel burning; level of air pollution; fatal cases due to air pollution, and renewable energy.

The Project "Reforming the system of environmental payments. Assessment of compliance with the "polluter pays" principle in Kazakhstan for 2018-2019" was launched as part of cooperation between Kazakhstan and OECD.

The work on **preparation of amendments to the Environmental Code** is underway as part of the "Improvement of the environmental assessment system in Kazakhstan in line with the Convention on Environmental Impact Assessment in a Transboundary Context" Project implemented by the Ministry of Energy and OECD. It is planned that new chapters such as "Strategical Environmental Assessment" and "Transboundary Procedures" will be included in the new Environmental Code. Also, subsidiary and sectoral legislation under the environmental assessment system will be amended.

As part of the Astana Economic Forum, the Al-Farabi KazNU has launched a **Sustainable Development Institute named after Ban Kimoon**. The Institute covers all human activities, particularly, food security, military security, natural resources, and life under water and on earth.

In 2018, the International Center for Green Technologies and Investment Projects signed several agreements on cooperation for environment and sustainable development. In particular, the agreements were reached with NJSC "Kazakhstan-Finnish Technological Center"; Scandinavian North Ecological Financial Corporation (NEFCO); the leading Finnish companies such "SET Clean Tech", "Polarsol", and "Onninen", "VITO" research agency and the Latvian Institute for environmental solutions.

Foreign Policy and International Cooperation

2018 has been marked by many important geopolitical events for Kazakhstan.

The President of Kazakhstan participated in meetings of the UN Security Council in the US

(January), the Supreme Eurasian Economic Council (May and December); XI Astana Economic Forum "Summit of Global Challenges" (May); Council of the Heads of Member-States of SCO (June); The Fifth Caspian Summit in Aktau (August); Council of the Heads of IFAS State-Founders in Turkmenbashi (August); Council of the CIS Heads of State in Dushanbe (September), and the Council of Collective Security in OKSTO (October).

Kazakhstan has completed its **chairmanship** in the UN Security Council. See details in section "Security Council".

The Fifth Caspian Summit that gathered the Heads of all Caspian states – Azerbaijan, Iran, Kazakhstan, Russia, and Turkmenistan – was held in Aktau (12 August). After 20 years of discussion, a Convention on the legal status of the Caspian Sea has been signed. The Convention has become a so-called "Constitution of the Caspian Sea." It is designed to regulate the whole range of issues related to the rights and obligations of the riparian states and to become a guarantor of security and stability in the region. See details in section "Caspian Sea: Special Legal Status".

The eighth Session of the Meeting of the Parties to the Convention on the Protection and Use of Transboundary Watercourses and International Lakes took place in Astana (10-12 October). More than 600 experts and ministers of 90 member countries of the UN, as well as international and non-governmental organizations and academia participated in the Conference. The Conference discussions addressed such issues as adaptation to climate change; water-foodenergy-ecosystem nexus, benefits of transboundary water cooperation, industrial security, and reporting. A number of decisions and documents have been adopted at the Conference, including two key documents: "Strategy for the Implementation of the Convention at the Global Level" and the "Program of Work for 2019-2021". The chairmanship in the Bureau of the Water Convention for the period of 2019 to 2021 will be passed to Kazakhstan. See details in section "UN Economic Commission for Europe".

The Meeting of the Russian-Kazakhstan Commission on joint use and protection of transboundary water facilities was held in Rostov (9 August). Issues related to high and low water in transboundary rivers have been discussed.

The <u>Agreement</u> between the Government of Kazakhstan and the Government of China on

cooperation for the construction of joint mudflow check dam—"Chukur-bulak (Almaty)" on the Khorgos River signed on 8 June 2017 in Astana was ratified. The mudflow check dam is a joint property of the Parties. The Parties jointly finance its construction by providing 50% of the total project cost each.

Upon initiative of the Heads of State N. Nazarbaev and Sh. Mirziyoyev, the **First Interregional Kazakhstan-Uzbekistan Forum** (Shymkent) took place on the 15th of November. The authorities of the regions in Kazakhstan and Uzbekistan have participated in the work of this Forum. In the course of the Forum 16 documents were signed on joint projects in the priority sectors of economy.

Sources:

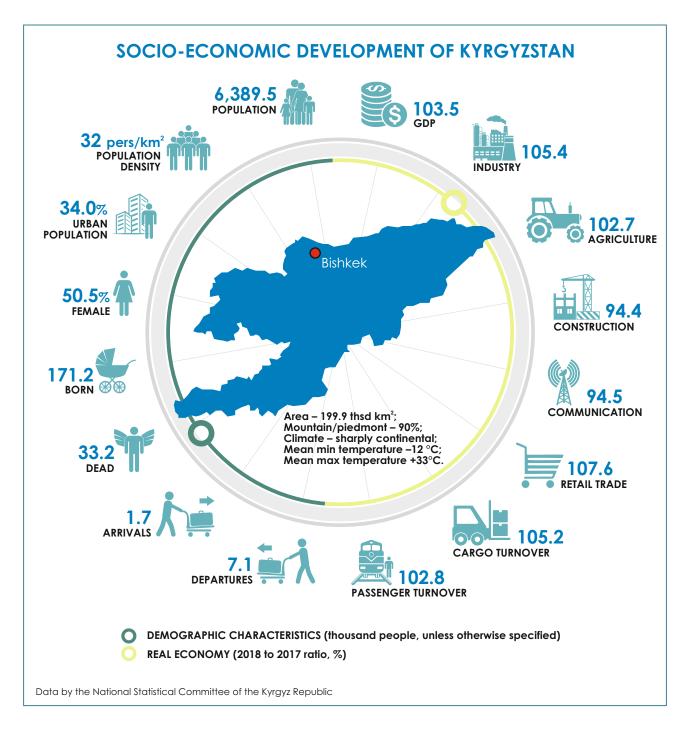
Official sites:

The President of Kazakhstan (www.akorda.kz);
The Ministry of Agriculture (http://mgov.kz);
The Ministry for Foreign Affairs (http://mfa.gov.kz);
The Ministry of Justice (http://adilet.zan.kz/);
The Committee for Water Resources
(http://mgov.kz/ru/komitet-po-vodnym-resursam-msh-rk/)

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https://agrosektor.kz;
http://ca-news.org;
http://carececo.org;
https://tengrinews.kz

5.2. Kyrgyzstan



General Information

Water resources. By expert estimations, the total available water resources in KR are 2,458 km³, including 650 km³ (26.4%) in glaciers, 1,745 km³ (71%) in lakes, 13 km³ (0.5%) as potentially usable groundwater resources, and 44.5 to 51.9 km³ (2%) as average annual river runoff. The flow formation area occupies 7% of the territory. There are about 3,000 rivers and streams with the total annual runoff of approximately 47 km³. The amount of annually renewable groundwater in major

artesian basins is within 7.7 km³. The area of current glaciation is 4% of the country's territory and varies within 7,500-8,000 km².

The state agency responsible for water management is the Department for Water Resources and Land Reclamation (DWRLR) at the Ministry of Agriculture, Food Industry and Land Reclamation of the Kyrgyz Republic. The Department is responsible for managing irrigation and drainage infrastructure; monitoring and regulation of water use; control and coordination of

the implementation of the single state water policy.

Energy. There are 18 power plants in the Kyrgyz Republic, including 16 HPPs and 2 thermal power stations (TPS) located in the cities of Bishkek (666 MW) and Osh (50 MW). The electric power system of Kyrayzstan comprises the transmission lines of 0.4-500 kW, with the total length of 86,800 km. Kyrgyzstan's energy system can generate, transmit and distribute electricity not only within the country but also export, import and interchange the electricity to the neighbouring states, as well as cover the power deficiency and the on-peak load in energy grids of the Central Asia region. In terms of hydro resources, Kyrgyzstan is number three among the CIS countries after Russia and Tajikistan. There are 252 large and medium-size rivers in the country, the potential of which is estimated at 18.5 MW of power and more than 140-160 GWh of electricity, of which less than 10% is used only at present. The Naryn, Sary-Jaz, Kokomeren, Chatkal, Tar, Chu, Kara-Darya and Chon-Naryn rivers have huge reserves of hydropower resources. Their average slopes vary from 5 to 20 m per 1 km in length, and the average unit capacity ranges from 2.2 to 5.3 MW/km. As many as 31 hydropower plants could be potentially built along the Naryn River and its tributaries with the annual generation of more than 16 GWh. According to experts, the main problems of the energy sector in Kyrgyzstan include: limited energy generation capacities; world-wide change in prices for fuel and energy and disintegrating processes in the common electrical grid of the Central Asian region; reliance of power supply on water content in the Naryn River and water accumulation in the Toktogul reservoir; high power losses and deterioration of relevant equipment; lags in application of innovative technologies; high energy and carbon intensity of GDP and lack of long-term energy-saving policy; energy resource tariffs that do not cover expenses of energy companies and lack of own funds of energy companies for development and modernization.

Irrigated area and water management system. In 2018, the total area of irrigated land in the Kyrgyz Republic was 1,053,000 ha. 240,000 ha are provided with the collector and drainage network. Conditions of about 87,000 ha of irrigated land are very poor. Provision with irrigation water is 78%. In this context, as part of the State Irrigation System Development Program for 2017-2026, it is planned to optimize the watering system and expand the irrigated areas by 50,000 ha. There are more than 8,000 of different hydraulic structures in the country. The

water-management system is comprised of 34 reservoirs for irrigation purposes and approximately 400 basins for daily and decade flow regulation with the total volume of about 2 km³. The total length of irrigation canals is 29,000 km, of which 5,800 km are the inter-farm canals on the balance sheet of the DWRLR, and 23,200 km are the on-farm canals on the balance sheet of local administration (Aiyl Okmotu), water-users associations (WUA) and other acting legal entities. Kyrayzstan has 274 irrigation systems and 93 accumulating irrigation structures (reservoirs, basins for decade and daily regulation), 219 pumping stations (of which 111 ones are electrified) on balance sheet of DWRLR. The length of the collector-drainage network is 5,700 km, of which 1,190 km are on the balance sheet of DWRLR, 460 km on the balance sheet of WUAs and 4,060 km are on the balance sheet of Aiyl Okmotu.

New Legislation

The Land Code and the Law "On agricultural and management" (ZKR No.12 of 24.01.2018) have been amended. Based on new legislation, from now on, while allocating agricultural land for use, the priority right have the Kyrgyz citizens living in given rural district and having cultivated plots of less than 0.10 ha per member of the family, as well as citizens living in remote or highland areas. Also, this category includes agricultural cooperatives registered and functioning in the territory of given rural district.

The Law "On agricultural land management" has been amended (ZKR No.64 of 30 June 2018). The amendments make it clear that the agricultural land is that for agricultural use or designated for these purposes and to be used for seed production; livestock breeding; pilot farming and for agricultural cooperatives; commercial farming; protective forestry; horticulture; vegetable gardening, experimental and selection activity and for other purposes related to agricultural production.

The Law "On fishery" (ZKR No.20 of 13 February 2018) has been amended. In the amended law excludes the Kara-Suu Lake from the list of fishery ponds.

The changes have been made in the Law "On imposing moratorium for transformation of irrigated land into other categories of land" and the Law "On transformation of plots of land" (ZKR No.79 of 2 August 2018). The Law provides for creation of conditions for the farmers for productive use of agricultural land. More than

40,000 land plots on the total area of 13,000 ha, which by different reasons were not diverted from agricultural production and were not transformed into the category of settlements, have been legalized.

The Code on Administrative Responsibility (ZKR No.67 of 4 July 2018) has been supplemented by a provision that breaking the rules and requirements regarding hydrometeorological surveys and monitoring over the environment and its pollution leads to penalties for citizens in the amount of up to three calculation indices and for officials – from 10 to 20 calculation indices.

The National Development Strategy of the Kyrgyz Republic has been approved for the period of 2018-2040 (UP No.221 of 31.10.2018). The Strategy outlines vision of the future of the country reflecting the main principles and ways of achieving development goals in religious and political, social and economic spheres of the society. It also sets the priority mid-term steps for implementation of the long-term vision.

The Concept of green economy in the Kyrgyz Republic has been approved under the slogan "Kyrgyzstan is the country of green economy" (PZhK¹⁰ No. 2532-VI of 28 June 2018). The Concept determines the main activities and sectors for the green economy development in the country with the purpose to achieve sustainable socio-economic growth in the republic.

The "Provision on the order of construction, acceptance and connection of small hydropower plants to the electrical grids" (PPKR No.465 of 04 October 2018) has been amended. The "State Agency on Architecture and Construction under the Government of the Kyrgyz Republic" in Point 12 of the Chapter 3 has been replaced by the "authorised state body on ecological and technical safety".

The Government has approved the draft Law "On making amendments to some legislative acts of the KR (Water Code of the KR; The Law of the KR "On Water") (PPKR No. 114 of 27 February 2018). The purposes of the Law include implementation of the principle of charging the use of water resources and water objects and elimination of collisions and loopholes in normative acts regulating the issues of water charges. The Draft Law has been approved by the Zhogorku Kenesh steering committee in the second reading (21 January 2019).

Water Sector

In 2018, the Kyrgyz Republic made huge efforts for preparation of infrastructure for irrigation, including repair and rehabilitation of irrigation canals (412 m); cleaning of river channels (369 km); reconstruction and rehabilitation of 1,161 hydraulic structures and 1,101 hydroposts; repair of 102 pump stations and 33 irrigation wells. It is planned to put into operation 31 irrigation objects for the total amount of \$259.1 million and 27,000 ha of new irrigated land, as well as improve water supply for 40,000 ha.

The "Reconstruction of irrigation system of the KR" Project started this year. For this Project the PRC has provided a grant for the amount of \$32 million. The Project provides for reconstruction and construction of 6 irrigation objects in Issyk-Kul, Batken, Talass and Chu provinces. After their completion, 5,400 ha of new irrigated land will be put into operation and water supply on an area of 22,100 ha will be improved. In general, the Project will create new jobs for 40 thousands of rural people all over the Republic.

Agreement with the EBRD has been reached to launch in 2019 new projects on irrigation and clean water supply to population in the regions and cities. For these infrastructure projects it is planned to allocate more than €129 million, of which €86 million as concessional lending and €36 million in form of a grant.

In Aksyj district of Jalal-Abad province, the **irrigational canal "Ak-Terek" for nearly 5,000 ha of land** near Kerben city and rural center Kosh-Dobo was under construction. The length of the canal is 7.4 km, of which more than 2 km will be built through the tunnel. The operation of the canal is to start in 2022. The amount of 800 million som have been allocated from the republican budget for construction of irrigational canal, 135 million of which have already been used.

Batken district has **started construction of irrigational canal to provide water to 1,500 ha of Dara and Tort-Gul rural communities**. The length of the canal is 46 km, and the carrying capacity is 4.5 m³/s. The construction is financed by the PRC in the amount of 500 million som through the grant agreement. The construction period is 3 years, and 80% of workers are local people.

The 17th Meeting of the Coordination Council of **National Water Policy Dialogue** in Kyrgyzstan was held among the representatives of

¹⁰ PZhK - Decree of the Kyrgyz Parliament

national ministries and agencies, as well as international and donor organizations (January). The meeting's sessions focused on the activity related to the Protocol on Water and Health in the KR; the institutional, economic and financial aspects of water governance and water infrastructure; coordination of partners and projects on water issues in the KR. Presentations were made on the activity of "National Water Resources Management" Project implemented with the support of the WB and SDC as part of the preparation of basin plans for water development, use and protection.

ADB and the Government of KR discussed the Technical Assistance "Climate Change and Disaster-Resilient Water Resources Sector Project" financed by the Japan Fund for Poverty Reduction, the funds of which are administered by the ABD (February). The Investment Project for \$25 million, which is included in the 2017-2019 business-plan of the ADB' activity in the KR, would contribute to resolution of issues in the country related to climate change and disaster resilience in the water sector focusing on flood, mudslide and drought risks. Structural (civil works) and non-structural (capacity building, planning and trainings to combat natural disasters) elements will be included in the Project.

Basin Councils. Basin Councils were established for the upper area of the Naryn-Syrdarya Basin (February) and the Karadarya-Syrdarya Basin (June). The first Forum of Small Basin Councils of the CA and Afghanistan which brought together representatives of small basin councils, relevant ministers and agencies of the region, as well as international organizations and projects was held in November (Bishkek).

In the context of the Sustainable Energy Financing Program in Kyrgyzstan (KyrSEFF-2018) under the aegis of EBRD and EC, the ceremony of award for the achievements in the area of efficient water and energy use was held (December, Bishkek). The main purpose of the ceremony was to illustrate successful stories about green investments to the wide circle of interested parties. The awards were given to the best projects on green finance among farms, enterprises and financial agencies, which were supported under the second phase of KyrSEFF.

The Kyrgyz-Kazakh Company "Aquasilver" has created a **new generation water pump** ("Gidrotaran"), which **operates without electricity and fuel**. Its presentation was held in Bishkek. The pump uses the energy of open water flow, converting it into the water hammer using a

short shock tunnel. This water pump can be used in farms and peasant households, animal husbandries, construction sites, fish farms, aquaparks and homestead plots.

The book on the short history of water management in Talas province ("Talas oroonunun Cyy charbachylygynyn kyskacha taryhy") was published in Kyrgyz language. This book was prepared by the veteran of water management of the KRS.S. Chondiev (mid of 2018).

Agriculture

Based on the data of National Statistics Committee as of 1 January 2018, 429,000 economic entities active in agriculture, forestry and fishery are registered in the KR. This is comprised of 323,000 (75.4 %) peasant households (farms) and 106,000 (24.6 %) individual enterprises specialised in agricultural production.

The Ministry of Agriculture, Food Industry and Land Reclamation issued the draft Government Decree of the Kyrgyz Republic "On approval of the Agriculture Development Strategy in the Kyrgyz Republic for the period up to 2040" for public discussion. The Strategy includes implementation of the state regulation policy through the improvement of legislative framework, promotion of priority directions of agriculture and provision of the state support for achieving the stated goals.

A five-year Project "Provision of wider access to markets" was launched in the agroindustry sector of Kyrgyzstan for a total amount of \$55.4 million. The project is implemented in five provinces (Issyk-Kul; Naryn; Osh; Djalal-Abad and Batken) and aimed at provision of support to the selected livestock value chains and of access to markets. Credit and grant funds of the International Fund for Agriculture Development compose \$25.4 million, of which (based on the conditions of agreement signed on 21 August 2017 and ratified on 24 April 2018) \$12.7 million is credit and \$12.7 million is grant. The contribution from the financial service providers is \$20 million; that from beneficiaries and the Government is more than \$8 million and \$1.6 million, respectively. It is expected that the Project will cover 28,000 of rural households and about 34,000 farmers, entrepreneurs, unemployed youth and veterinarians. As the result, it is expected to achieve 30 % growth of sales to the targeted audience, increase export of livestock products by 10 % and create 2,800 of permanent job places.

The "Financing Agriculture-6" Project has been **approved** (PPKR No.92 of 14.02.2018) and is implemented as part of the Governmental Program (PPKR No. 74 of 31.01.2018). The Project is aimed at providing state support to the entrepreneurial entities and individuals in the country to complete spring field work in 2018 on schedule and develop further cattle breeding, crop production and agricultural cooperation. The project period covers 36 months. The sources of financing include the republican budget for 2018-2020 and funds of commercial banks and credit organizations. Based on the data of the Kyrgyz Ministry of Finance, as of 27 December 2018, commercial banks provided more than 5.6 billion som as concession loans for 11,300 rural producers. More than 1.3 billion som of the provided funds have been allocated for crop production, 2.9 billion som for cattle breeding, and 1.4 billion som for processing and services.

In 2018, inspections were undertaken to detect pests, diseases and weeds on an area of 435,100 ha. Based on the results of inspections, local authorities were given 1,200 signalling messages on a need to implement chemical treatment. Accordingly, farmers have treated crops with chemicals on an area of 210,000 ha and completed chemical weeding on 291,700 ha. 34,100 t of spiked cereal seeds (78% of planned) have been pre-treated.

AgroTech Expo-2018 that demonstrated all agrarian developments in Kyrgyzstan was held in Bishkek (14-16 November).

More than 2,400 ton of fish were produced and the fish stock was reproduced in Kyrgyzstan in 2018. For the purposes of reproduction, fish ponds of Kyrgyzstan were replenished: the Ton fishery plant received 410,000 fish eggs; "Balykchylar" Limited Company – 420,000 eggs of Issyk-Kul trout; OOO "Karakolbalygy" – 200,000 fish eggs; Son-Kul fish farm – 1,350 million fish eggs, and the Orto-Tokoj reservoir- 1,200 million eggs of fera fish.

The State Service of Intellectual Property and Innovation under the Government of the Kyrgyz Republic (Kyrgyz-patent) has presented the results of innovation project "Commercialization of new bio-fertilizer 'Rostin' production" to improve soil productivity and crop yields in greenhouse farms and in open soil (November).

The Government of Japan allocated \$600,000 to the World Food Programme in Kyrgyzstan to support rural women involved in entrepreneurship and farming. The funds will be

delivered to proceed with successful projects for economic empowerment of rural women. Financial support will reach more than 15,500 vulnerable people in rural areas of Naryn, Talas, Jalal-Abad, Osh and Batken provinces. The grant will be provided for income-generating assets, for example, orchards and gardens, as well as for support in establishing small business and improving rural infrastructure.

In the course of implementation of the agroindustry project "OPTIMA" a Memorandum of Cooperation has been signed between the Kyrgyzstan Ministry of Agriculture, Food Industry and Land Reclamation, the Longkun China International Trading Co., LTD and the "EU Commodity Exchange" (EU-CE). The Memorandum provides for facilitation of mutual exchange of agricultural outputs between the producers of the KR and the PRC, including access to markets for agricultural producers, access to Chinese wholesale market network, and development of online trade on the basis of EU-CE between the Kyrgyz and Chinese entrepreneurs.

International Financial Corporation (IFC) group of the WB and KNAU have signed a Memorandum on Cooperation, which provides for transfer of Corporation's training materials on agro-business to the University. The IFC will provide its support to the teachers of the University in reworking of training materials and the students will have possibility to get on-the-job training in pilot entities of the Project.

The Government of the KR and the UN World Food Programme have signed a Memorandum on Cooperation for 2018-2022 (PPKR No 462 of 08.10.2018), which provides for implementation of the joint Country Strategic Plan (CSP) during the period of 2018-2022. The main priorities of the Plan include the improvement of food security; optimization of school meals and improvement of living conditions of rural people through better performance in agriculture in the context of climate change. The CSP meets the national priorities aimed at economic growth and social welfare and helps to achieve SDG 2 "Zero hunger by 2030" and SDG 17 "Partnership for sustainable development".

Drinking Water Supply

According to the Department for Water Supply and Sanitation at the SAAC and PHU, in total, there are 1,891 settlements registered in the KR. The coverage of people in these settlements with drinking water supply is about 65%. It is planned to build and rehabilitate the water

supply systems in 653 villages, 22 cities and 26 district centers and also build additional sewage systems in the KR by 2026. To this end, based on expert estimations, more than 30 billion som or \$438 million are needed. 386 villages of Kyrgyzstan have never had access to the water supply system, while 267 villages have the systems that were built in the fifties of the last century. To resolve this issue, the following financial sources will be used:

- WB allocated \$71.2 million for implementation of the "Ala-Too-Bulagy" Program, which is to cover 117 villages in Osh, Chu and Issyk-Kul provinces by 2022;
- IDB allocated \$23 million. Based on these funds, projects in 24 villages of Jalal-Abad province were started. In addition, as part of the "Ala-Too Bulagy" Program, it was decided to allocate additional funds in the amount of \$50 million for water supply of 91 villages in Batken and Talas provinces:
- ADB allocated a grant in the amount of \$21.4 million. Technical assistance will be provided for preparation of a project covering 42 villages in Naryn province. This is to be implemented over 2019-2023;
- Allocation of €80 million by EBRD is under consideration.

In general, for the drinking water supply projects the KR has received \$191 million from the WB, IDB, ADB, EBRD, EC and the Swiss Confederation. Grants cover a major part of this amount. For complete implementation of the Water Supply and Sanitation Strategy in Kyrgyz settlements by 2026 (approved by PPKR No. 155 of 28.03.2016) additional \$200 million will be needed. In total, there are 390 villages in the Kyrgyz Republic with no drinking water. The situation with Jalal-Abad province is especially difficult: 148 villages have no access to drinking water supply. In 2019, 350 million som is to be allocated from the republican budget for provision of access to clean drinking water.

The Agreement between the Government of KR and IDA on additional financing for the Sustainable Development of Rural Water Supply and Sanitation Project signed on 13 November 2017 has been ratified (ZKR No. 48 of 18 May 2018). The purpose of the Project is to improve the access to and quality of water supply and sanitation services in participating rural communities and build capacities of beneficiary institutions in the water supply and sanitation

sector. The Project costs \$43.2 million, of which: \$16.2 million – IDA grant; \$19.8 million – IDA loan; and, \$7.2 million – co-financing of the KR Government. The Project is implemented in 53 selected villages in Osh, Chu and Issyk-Kul provinces.

Departments of sanitary-epidemiological stations of Kara-Kulzha and Uzgen districts in Osh province have received new sets of equipment for drinking water quality checking and analysis. The equipment was bought through UNDP in the KR with the financial support of the Russian Federation. The whole set of equipment for two districts cost 2.2 million som. The equipment will help to improve the quality of health services for more than 315,000 villagers.

In the course of negotiations between the official delegation of the KR and representatives of the IDB, an agreement was reached on the provision of a loan of \$20 million. A Protocol was signed for the "Improvement of rural water supply and sanitation in Batken and Talas provinces" Project (23 November). According to the Agreement, the Department for Water Supply and Sanitation will be the Project Executive Agency and the Agency for Community Development and Investments will be the Implementing Agency.

ADB has approved a financing package to help improve wastewater management systems and strengthen the sustainability of water supply and sanitation facilities in the two lakeshore cities of Balykchy and Karakol on Issyk-Kul Lake (November). The total cost of the Project, which is to be finished by the end of 2024, will be \$41.8 million, of which \$36.5 million is the ADB aid (\$23.7 million loan and \$12.8 million grant), and \$5.3 million is a contribution from the KR. The Project will improve and upgrade the wastewater systems in the two lakeshore cities through the construction of 21.6 km of sewerage; 1.7 km of effluent outfall pipelines; and a new pump station. A reservoir in Karakol will be desludged by removing 100,000 m³ of sludge, while providing 7 septage vacuum trucks. The Project will build capacities of the "Vodokanal" enterprises that are responsible for water supply and sanitation in Balykchy and Karakol as well as raise people's awareness on advanced methods of sanitation and hygiene.

An agreement was reached to allocate a sovereign loan of the EBRD in the amount of ≤ 5.5 million for 15 years and a grant from the Swiss Government in the amount of ≤ 5.7 million (December). The funds will be used to **improve the updated water supply system** built more than

50 years ago. The Project provides for financing of a range of activities to improve water supply, including rehabilitation of conduit network, as well as renovation of process equipment, metering system, storage tank and pump station.

In 2018, the work on provision of access to water supply was undertaken for several villages in Chu province: Kara-Suu, Kara-Sakal, and Toloikon. Also, 8 km of sewerage network laid in Bishkek.

Power System

The Russian Holding Company "RusHydro" has informed the KR on preparation of a complaint to the Hague Tribunal on the Upper Naryn Cascade of HPP (June). In 2012, the KR and RF reached an agreement on the construction of the Kambarata HPP-1 and the Upper Naryn Cascade of HPP with participation of "Inter RAO" and "RusHydro" respectively. In 2016, the Kyrayz authorities unilaterally terminated the agreement with Russia on joint implementation of these two projects. After that, "RusHydro" declared about its intention to submit the matter to international arbitration. In July 2017. the Kyrgyz authorities signed an agreement with the Czech company Liglass Trading CZ on the renewal of construction of the Upper Naryn Cascade of HPP, which was initiated together with "RusHydro". The Agreement provided that the Liglass Trading would pay the debt of Kyrayzstan before the Russian investor in the amount of \$37 million during one month. However, the Government of Kyrgyzstan has terminated the Agreement with the Czech company due to the fact that the latter failed to fulfil this obligation in due time (October).

Rehabilitation and construction work on the energy block No.1 of the Toktogul HPP was undertaken as part of the "Rehabilitation of Energy Sector" Project (Phase 1). The cable line KL-1-500 kW and power transformer 500 kW (July) have been replaced.

Small HPPs

The Parliament (Zhogorku Kenesh) of the Kyrgyz Republic has approved the draft law "On making amendments to some legislative acts of the KR on renewable sources" (24.01.2019). The changes include the provision of tax and custom benefits (through tax exemption for the period of 5 years) for new producers of electrical and thermal energy generated through RES, as well as the reduction of coefficients to the maximum electricity tariff for end consumers

during the whole grace period (currently, the maximum tariff is 2.24 som/kW). Also, new concepts such as the "grace period" and "distribution plan" are being introduced. The grace period extends from 8 to 10 years. The notion of "tender" is proposed to be replaced with the "competitive selection". It has been proposed also to replace the existing mechanism of additional cost compensation of the distributing enterprises with purchasing of electricity from RES entities.

Amendments have been made to the Government Decree "On approval of the Provision on the order of construction, acceptance and technological connection of small hydropower stations to electrical grids" No. 476 of 28 July 2009 (PPKR No. 456 of 4.10.2018). According to the amendments, construction organizations should notify an authorised authority for ecological and technical safety - "Gosekotehinspekziya" - before undertaking construction of small HPP and electricity grid complex for technological connection of small HPP to electrical grids. Previously, it was necessary to inform the authorized energy body and the State Architecture and Construction Agency under the Government of the KR.

Two small HPPs have been built in Ton district of the Issyk-Kul province – Kok-Saysk (3.4 MW) and Konur-Olonsk (3.6 MW) for a total amount of 730 million som. The expected total annual electricity generation is 45 million kWh. The credit for purchasing of equipment was provided by the Russian-Kyrgyz Development Fund. The hydropower plants will be equipped with Austrian facilities and components from the Czech Republic, Switzerland, Germany and Turkey.

Environmental Protection

"The Establishment of UNCCD Knowledge Hub Project" has been completed. The Project implemented since 2016 by CAMP Alatoo Public Foundation and the Kyrgyz MAFILR was aimed to combat and reduce degraded and dried land areas, landscape them, and raise public awareness on consequences of desertification. As part of the Project, the UNCCD Knowledge Hub was established. Among the main results of the Knowledge Hub were the developed proposals on combatting desertification, web-site (www.unccd.agroprod.kg) and newspaper "Agrovesti".

Emergencies

With the aim of increasing resilience of population and territories to emergency situations the

concept of comprehensive protection of population and territories of the KR for 2018-2030 (PPKR No. 58 of 29.01.2018) was adopted.

The key expected results of the Concept include the full coverage of population with the early warning system; reduced to minimum death level from the emergencies by 2030; reduced to minimum direct economic losses and damage by 2030; increased resilience of critical infrastructure to emergencies.

The country has about 3,900 mudflow basins; 200 highland lakes have high risk of breach; and more than 300 settlements are located in the area of potential catastrophic flooding. More than a half territory of the country is subjected to avalanches. The avalanche period lasts for 5-7 months. Annually, avalanches cause emergencies and human casualties on mountain roads. There are more than 5,000 active landslides in Kyrgyzstan. 600 settlements are subjected to different degrees of landslide processes. About 10,000 households are located in potentially dangerous areas. In total, the area of 3.200 km² is waterlogged. Natural emergencies also include hazardous meteorological phenomena (heavy showers, hail, heavy winds, snowfalls and frosts, drought, etc.), bank erosion, collapsing loess and clay soil, ground fall, rock fall and others.

During the period of storm warning from 26 to 30 January, snowy and icy streams along the Ala-Archa River caused ice jams and flooded houses and coastal territories of Pervomai and Leninskiy districts.

In March, the rising water level in the Kara-Unkur River in Bazar-Korgon district created a threat of flooding for cotton-processing plant.

In April, Uzgen district saw an increased water level in the Karadarya River. As a result, more than 350 ha of agricultural land have been flooded. The emergency situation has been declared in Jalal-Abad city and Suzak district after landsliding, which blocked the Kek-Art River bed.

In May, as a result of mudslides in Leilek district of Batken province, 27 private and 5 social structures and 8 farms were flooded. 69 ha of agricultural lands and more than 13 km of internal roads have been flushed away. 242 goats and sheep and 30 heads of cattle have been swept out. Also, the streams have destroyed 6 bridges, 4 cars and 6 pieces of electrical equipment.

Since 2017, a massive outbreak and growth of locusts have been observed in Kyrgyzstan (the same situation is registered in all republics in Central Asia). In this context, the area of more than 107,000 ha has been chemically treated. Annually, locusts are considered as a potential threat for agriculture, economy, social life, and puts food provision at risk. In May, locusts covered more than 61,000 ha of land. Based on the expert data, this mass outbreak and growth will continue during 4-6 years.

The Law of the KR "On ratification of the Agreement between the KR and IDA on financing resilience to disaster risks in Kyrgyzstan signed on 10 September 2018 in Bishkek" has been adopted (PZK RK No. 2817-VI of 27.12.2018). The Agreement provides support to the Government of Kyrgyzstan in building capacities for disaster risk management. The Project consists of 5 components for implementation of which the WB allocates \$20 million, 50% of which is credit and another 50% is grant. The credit is provided for 38 years with forbearance period of 6 years.

The ADB has approved \$38.6 million for the improvement of disaster risk management in the Kyrgyz Republic, in particular, for financing modernization of irrigation systems, increase of agricultural production and improvement of land use, development of emergency risks management and improvement of relevant data collection and analysis in the KR. The Project will be focused on the Fergana Valley in south-western part of the country and the basin of the Chu River in the north, which are vulnerable to floods, mudslides and droughts aggravated by the climate change. Co-financing of the Government of Kyrgyzstan will amount to \$5 million.

Foreign Policy and International Cooperation

In 2018, the President of the KR made state visits to Turkmenistan (August), the PRC (June), the Republic of Tajikistan (February) and Turkey (April) and working visits to the Kingdom of Belgium (April), the Russian Federation (May), the Republic of Kazakhstan (March), Turkey (July), the U.S. and the Republic of Tajikistan (September).

In the course of the year, the President of KR participated in the following events: the First Consulting Meeting of the Heads of State of Central Asia (March, Astana); Meeting of the Highest Eurasian Economic Council with participation of the Heads of State of EAEC (May,

Sochi); Meeting of the Council of Heads of SCO Member States (June, Quingdao); Meeting of the National Council on Sustainable Development of the KR (August, Bishkek), IFAS Summit (August, Turkmenbashi); Opening Ceremony of the Third World Nomad Games (September, Cholpon-Ata); the 73rd UN General Assembly (September, New York); Meeting of the Board of the CIS Heads of State (September, Dushanbe); Meeting of the OSCE Parliamentary Assembly (October, Bishkek); World Issyk-Kul Forum "Chyngyz Aitmatov and modern world's challenges" (October, Cholpon-Ata); Session of the CSTO Collective Security Board (November, Astana); the Kyrgyz Youth Congress (November, Bishkek); II International Conference "Islam in modern civil state" (November, Bishkek).

The important international events with the participation of the Kyrgyz Republic in 2018 include the following:

- The First Meeting of border provinces of Kyrgyzstan and Uzbekistan under the supervision of the Prime-Ministers of the two countries (March, Fergana);
- Full-fledged Meeting of the CA Ministers for Foreign Affairs, during which the issues of further development of relationships in all areas have been discussed (July, Cholpon-Ata);
- State visit of the President of KR to Turkmenistan. A package of agreements has been signed including the Kyrgyz-Turkmen Declaration on Strategic Partnership, on strengthening of friendship and trust (August, Ashkhabad). See details in section "Kyrgyzstan-Turkmenistan";
- Meeting of the Heads of Participating State of the VI Summit of the Cooperation Council of Turkic Speaking States (CCTSS) under the chairmanship of the President of KR (September, Cholpon-Ata);
- IV World Mountain Forum (October, Bishkek);
- Regular Session of the CSTO Collective Security Council in the KR, during which the chairmanship has been transferred from the Republic of Kazakhstan to the Kyrgyz Republic (November, Astana);
- Meeting of the Ministers for Foreign Affairs of EU-CA (November, Brussels);

- Il Meeting of the Heads of border provinces of Kyrgyzstan and Uzbekistan under the supervision of the Prime-Ministers of two countries (December, Osh);
- 62nd Plenary Meeting of the 73rd UN GA, during which the amended draft Resolution "The role of international community in prevention of radioactive threat in Central Asia" initiated by the KR has been unanimously adopted (December, New York).

Sources:

Official sites of the:

The President of the Kyrgyz Republic (www.prezident.kg);

The Parliament of the Kyrgyz Republic (www.kenesh.kg);

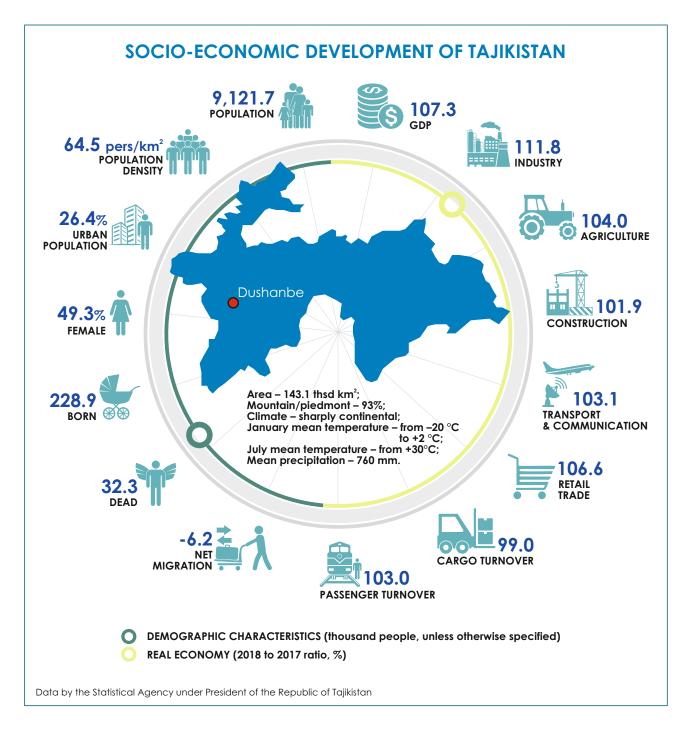
The Ministry of Justice (http://cbd.minjust.gov.kg); The Ministry of Energy and Industry (http://energo.gov.kg).

Explanatory notes to the Kyrgyz Republic Irrigation Development State Program for 2017-2026

News sites:

http://barometr.kg; https://24.kg; https://ru.sputnik.kg; http://kabar.kg

5.3. Tajikistan



General Information

Water resources. Tajikistan ranked the first in Central Asia in terms of water reserves. Mountains and piedmont zone are the main streamflow generation areas in the Aral Sea Basin. More than 80% of Amu Darya runoff and 1% of Syr Darya runoff are formed in Tajikistan. In total, this accounts for 64 km³ a year or 55.4% of water resources in the Aral Sea Basin. The total glacial volume is more than 845 km³, and lake water is about 46.3 km³. Renewable groundwa-

ter resources of Tajikistan amount to 18.7 km³ a year. The unit water supply for population is 7,000 m³/per capita a year.

Energy. Against the background of insignificant oil and gas resources and difficulties for large-scale coal mining, Tajikistan has huge, inexhaustible reserves of hydropower resources. By expert estimations, those reserves amount to approximately 527 billion kWh/year. At present, about 95% of energy in the country is generated by hydropower plants. In 2018, energy genera-

ted all over the country amounted to more than 16.2 billion kWh or more than 3% of available potential.

The state agencies dealing with water management in Tajikistan (PP No. 791 of 30.12.2015) include: Ministry of Energy and Water Resources (MEWR), Ministry of Agriculture, Ministry of Health and Social Protection of Population, Committee for Environmental Protection, Committee for Emergencies and Civil Defence, Chief Administration of Geology, Service of State Monitoring over Safe Operations in Industry and Mining, Agency of Land Reclamation and Irrigation at the Government of Tajikistan, State Unitary Enterprise "Khochagii Manziliyu Kommunali", and Open Joint Stock Company "Barqi Tojik".

New Legislation

In 2018, a number of legal regulatory acts were adopted in the area of agriculture, water management, hydropower and environment. In particular, amendments and changes have been made to the Law "On Security of Hydrotechnical Constructions" (ZRT No. 1500 of 02.01.2018 and No. 1534 of 17.05.2018); environmental impact assessment procedure, which categorizes structures depending on the character of their impact on environment, has been approved. The Law of the Republic of Tajikistan "On amending the Law on State Budget of the Republic of Tajikistan for 2019" (ZRT No. 1604 of 19.04.2019) was adopted as well.

Implementation of National Strategies and Programs

The National Development Council under the President of the RT met to discuss the progress on national strategy documents in the context of SDGs, such as the National Development Strategy by 2030 and the Mid-term Development Program of the Republic of Tajikistan for 2016-2020 (3 July, Dushanbe). The President of the RT Emomali Rakhmon mentioned in his speech that "... over two years of implementation of the National Strategy, more than 9.2 billion somoni was allocated to the education sector (17.9%), which is 5.9% of the GDP. In this period, more than 45,000 jobs have been created in education. The health sector received 3.5 billion somoni; social insurance and protection have received 8.5 billion somoni [...]. More than 9.6 billion somoni have been spent to ensure energy independence; approximately 3 billion somoni have been provided for the transport infrastructure to help Tajikistan to move from communicational dead-end and become a transit country. In the energy sector, new capacities to generate electrical and heat energy have been put into operation, including heating centers of Dushanbe-1 and 2. At the same time, the first phase of reconstruction of hydropower plants, such as Nurek, Sarband and Kairakkum was started. In the transport sector, the reconstruction of roads Vose-Khovaling; Sairon-Karamik; Dushanbe-Tursun-zade-border of Uzbekistan and a part of railroad Vakhdat-Yavan have been completed. The construction of modern terminals Kulma; Guliston; Nizhniy Panj and Bobojon Gafurov, as well as the reconstruction of highways Dushanbe-Bokhtar; Hujand-Isphara; Kulyab-Shamsiddini Shohin; Shkev-Kalaihumb, and Temurmalik-Baldjuvan-Khovaling are underway.

A meeting of the Inter-Agency Working Group on the analysis and assessment of implementation of sectoral and regional programs was held in Dushanbe (5 November). The participants discussed the progress achieved on the "Socio-economic development program in the city of Kulyab for 2015-2019" and the "Plan of actions on socio-economic development of the mountain areas of Kulyab province for 2014-2019".

Water Sector

The first public hearings of the Draft Law "On land reclamation and irrigation" were held in the Gorno-Badakhshan autonomous province (GBAO) on 3 August. This Law was drafted as part of the Water Sector Reform Program for 2016-2030 approved by PP RT No. 791 of 15 December 2015. The new Law provides for the establishment of a designated authority in the area of land reclamation, which will be responsible for licensing of relevant activity.

The Government of Tajikistan and the WB signed the grant agreement under the **Zarafshan Irrigation Rehabilitation and Improvement Project** for an amount of \$16.5 million (16 January).

The ADB Board of Directors has approved a grant in the amount of \$6.5 million as an additional financing for the current **Water Resources Management in the Panj River Basin Project**.

A small basin council in the Tajik territory of the Isfana River sub-basin has been established. The main task of the Basin Council is to manage water resources of the sub-basin, which covers Jabbar-Rasulov and Spitamen districts in Tajikistan.

The pump stations in Kizili and Seksari settlements have started their operation after repair and rehabilitation. The pump stations are to contribute to better conditions of 4,000 ha of land. Particularly, 1,300 ha will be put into rotation again and 1,000 ha will be developed at the expense of dryland (boghara) and pastures.

A reconstructed canal, 1.2 km long, has been put into operation in the Siponj village of Bartang Valley in Rushan district in GBAO (June).

Agriculture

Tajikistan is a highland republic, with a small portion of land suitable for cultivation. Due to deterioration of irrigation and drainage infrastructure, waterlogging and salinization, only 515,000 ha are used out of 720,000 ha of irrigated arable land.

Harvest 2018. 187,500 ha of land were allocated for cotton in 2018 or 13,500 ha more than in the previous year because of growing market demand. However, the cotton harvest collected in 2018 was the lowest for the last 5 years. As for the grain crops, by December 2018, the country's agriculture produced more than 1.2 million tonnes of grain, including more than 765,200 tonnes of wheat. And wheat import increased by approximately 4,400 tonnes as compared to 2017 and reached 1.019 million tonnes at \$272.6 million. Flour import decreased by 7,400 tonnes – to 47,000 tonnes at approximately \$10 million. And 954,200 tonnes of potato have been harvested.

As of December 2018, the **agricultural production output** reached 24.2 billion somoni or \$2.5 billion in Tajikistan. Crop production grew 3.6% (\$261 million), while the growth in the livestock breeding sector was 5.4% (\$96.3 million).

The Khatlon province authorities and USAID held the first **fruit-and-vegetable trade forum**, which provided communication and partnership opportunities for more than 300 producers, sellers and buyers from Kazakhstan, Kyrgyzstan, Tajikistan, and Uzbekistan.

Drinking Water Supply

Only 58% of Tajikistan population have got access to centralized water supply. To improve the situation, the following steps were taken in 2018:

The construction of **water supply systems** for the cities of Kanibadam and Gulistan was started to provide clean drinking water to 25 thousand people and more than 15 thousand people, respectively.

The ADB Board of Directors has approved a grant in the amount of \$41.18 million for the **rehabilitation** and development of climate resilient water supply and sanitation infrastructure in the southeast of Dushanbe.

A memorandum was signed between the Red Crescent Societies of Tajikistan and Kuwait on cooperation in the area of health improvement, charitable assistance to the people-in-need in Tajikistan, and water supply, including laying water mains in the water-scarce regions, etc. (April, Kuwait).

Energy

Restructuring of the State Energy Holding Company "Barqi Tojik". The restructuring process of the "Barqi Tojik" was started in 2012. Changing the structure of the State Holding is an important part of the reform implemented in the energy sector. The Resolution of the Tajik Government No. 234 of 28.04.18 "On reorganization of joint-stock companies" mentions the reorganization of the Open Joint-Stock Holding Company (OJSC) "Barqi Tojik" and the establishment on its basis of two new open joint-stock companies, such as "Transmitting power networks" and "Distribution networks". The announcement of the IMF mission on reorganization of the OJSC "Barai Tojik" stated that the losses incurred by "Barqi Tojik" were caused by the lack of accountability and transparency in management and the tariffs for big industries that were lower than the base cost. "By the beginning of the second half of 2018, the total liabilities of "Barqi Tojik" were more than 15.1 billion somoni (over \$1.6 billion), including tax liabilities (109.2 million somoni), debts to Sanatuda HPP-1 (1 billion somoni) and HPP "Sangtuda-2" (1.2 billion somoni), debt to the OJSC "Orienbank" (1.8 billion somoni) and debt for purchase and delivery of coal (14.8 million somoni). By the Government Decree "On governmental financial support to the Joint Stock Holding Company "Barqi Tojik" (PP RT No. 606 of 29.12. 2018) it was instructed to reduce the debt of "Barqi Tojik" to "Sangtuda HPP-1" in the amount of about 47.2 million somoni.

Electricity production and export. In 2018, Tajikistan was exporting more than 2.4 billion kWh of electrical power, which is approximately twice as much as in the last year, when the country sold approximately 1.3 million kWh to foreign partners, of which 926 million kWh were

sold to Afghanistan and 1.48 billion kWh delivered to Uzbekistan. Afghanistan is paying twice as much for Tajik electricity (\$0.04 kWh) than Uzbekistan (\$0.02 kWh in summer and 25% higher in winter time), who started to buy electricity since April 2018. The national budget revenues from selling of electricity generated in the country in 2018 (over 19.7 billion kWh) amounted to 2.7 billion somoni (\$286 million, based on the exchange rate of NBT as of 28 January 2019), which is by 458.8 million somoni (\$48.6 million) more than in 2017.

Two transmitting lines have been put into operation with the capacity of 220 and 500 kW. In March 2018, the transmitting line of 220 kW "Aini-Rudaki" and the sub-station "Rudaki" were put into operation. The TBEA CO LTD Company, China, is the main contractor of the above project. The launch ceremony of the transmitting line 500 kW "Dushanbe-Obi gharm" and distribution kit EDK-500 was held in November. This transmitting line is to connect the sub-station "Dushanbe-500 kW" with EDK.

According to PP RT No. 473 of 25 September 2018, the price for electricity is to increase by 15% since the 1st of November. Now, the Tajik population has to pay 19.37 dirams instead of 16.85 dirams per kilowatt.

Rogun HPP. Construction works in 2018 were completed in line with the schedule. The staff of Dnepr-SGEM together with chief-engineers of the "Electrotyazhmash" plant and the management staff of the station transported and assembled in proper location the runner of the hydroelectric generator No. 6, the first of 6 units of the Rogun HPP (5 July). The official launch of the first unit of the Rogun HPP (16 November) was held with participation of the Vice-Prime-Minister of Afghanistan, the Minister of Water Management of Uzbekistan and the Deputy Minister of Energy of Russia, as well as representatives of the CASA-1000 participating countries, international organizations, diplomats and journalists from more than 30 leading media agencies in different countries.

Initially, 2 billion somoni were allocated for the Rogun HPP from the national budget for 2018. In October, Majlisi Namoyandagon (Lower Chamber of Parliament) of Tajikistan approved amendments to the state budget of the RT for 2018. In accordance with the amendments, additional funds in the amount of 749 million somoni were allocated for the construction of the Rogun HPP. More than 223 million budget funds will be sent in 2019 for finishing of the Rogun HPP. In September 2018,

the Government of Tajikistan put Eurobonds in international markets and attracted \$500 million. The Government of Tajikistan plans to pay off its external creditors, which have acquired Eurobonds by 2028. In order to finish the HPP and pay off debts, the Tajik authorities intend to sell electrical energy generated by the two units to Afghanistan and Pakistan at higher tariffs.

By the invitation of the Tajik side, the ICWC delegation visited the Rogun HPP (28 November 2018). The visit was started from the office of OJSC "Rogun HPP", where Mr. Rakhmonov, the chief operating officer, explained about the construction of the station and provided the detailed information about its key structures. Then the delegation visited the site. 52 km of tunnels of the planned 74 km have been already built. The cost of the finished work, including that done in the Soviet period, is \$3.2 billion. To complete the HPP, additional \$4.5 billion will be needed (See details in section "ICWC" and Press-release of SICICWC).

CASA-1000. In the second quarter of 2018 a tender to develop the CASA-1000 project operational strategy and a high-voltage direct current transmission system was announced. Based on the results of the CASA-1000 Regional Project's Inter-Governmental Board Meeting. the Agreement between the OJSC "Barqi Tojik" and the Italian Company CESI on consulting services for direct-current objects was signed in September. Also, the Agreement between the OJSC "Barqi Tojik" and the Swedish Company ABB on the construction of converter sub-station in Sangtuda with the capacity of 1300 MW and the Agreement between the OJSC "Barqi Tojik" and the Indian Company "Kalpataru Power transmission Ltd" on the construction of the Tajik part of power transmission line 500 kW were signed. As of December 2018, the design of transmission line Sangtuda 500 kW up to the border of Afghanistan was completed and submitted to the OJSC "Barqi Tojik" for approval.

Sarband HPP. In Khatlon district in the south of Tajikistan, the first modernized plant unit of Sarband (Head) hydropower plant on the Vakhsh River was officially launched (7 November). The contractor, "PowerChina" (Sinohydro) Company, has informed that after the reconstruction the capacity of the plant unit increased from 25 to 49 MW, i.e. by 24 MW.

Nurek HPP. The Nurek HPP is the main source of power supply in Tajikistan but due to deteriorated equipment it works for 80% of its capacity. To deal with this issue the Government of

Tajikistan attracts investments for its rehabilitation. The total amount of rehabilitation project is \$700 million. The WB has provided \$225 million and the Asian Bank on infrastructure investments and the European Bank have allocated additional \$100 million. In August 2018, as a result of the tender announced for rehabilitation of the Nurek HPP, OJSC "Barqi Tojik" selected the group of companies "Andritz" (with the headquarters in Austria).

Kairakkum HPP. About \$126 million will be allocated for implementation of the second phase of the Kairakkum Hydro Power Rehabilitation Project in Tajikistan, of which \$38 million will be a public loan from the EBRD, \$27 million is a concessional loan, \$23 million is a grant of the Green Climate Fund and €35 million is a public loan of the European Investment Bank. The project is expected to complete the rehabilitation of the Kairakkum HPP with the maximum increase of the current fixed capacity from 126 to 174 MW. The project is to be completed in 2024. The contract for implementation of the Project was signed on 20 December with the GE Hydro (France), GE Renewable (Switzerland), and the Cobra Instalaciones y Servicios S.A. (France-Switzerland-Spain).

Farkhad HPP. Tajikistan and Uzbekistan signed an agreement on cooperation in operation of the Farkhad HPP (9 March). By this agreement Tajikistan and Uzbekistan, respecting the interests of the both parties, have agreed to use together the Farkhad Hydrosystem for the period of next 49 years: the territory, where the Farkhad HPP is located, should be considered as the territory of Tajikistan, and the hydropower plant should be considered to be the property of Uzbekistan, which consumes 100% of electrical power generated by the HPP. The Agreement was ratified on 25 April 2018 during the regular meeting of the Majlisi Namoyandagon of the Republic of Tajikistan.

Small HPPs. By May 2019, 30% of work on the reconstruction of the "Oksu" HPP has been completed in the Murgab district, GBAO. The project cost is 7.4 million somoni. The "Pamir Energy" Company is in charge for implementation of the project and the "Bunyod Ltd" has been chosen as a contractor of construction work. It is planned to increase the capacity of two units up to 800 kW each at the total capacity of 1,600 kW to improve the power supply of the Murgab district.

Small HPP "Tajikistan" with the capacity of 1.5 thousand kW has been put into operation in Murgab District, GBAO in September. The dam height is 64 m and the length is 12 m. There are two units in the machinery room, each having capacity of 750 kW. They are automatically operated through the SCADA system.

Early in 2018, Tajikistan received the first part of component units from the Tashkent plant "Uzelektroapparat" in the amount of \$670,000.

Climate Change, Glaciers and the Environmental Protection

The Glacier Research Center was established at the Tajik Academy of Sciences (PP RT No. 162 of 27.03.2018). The Center organized an expedition of a group of scientists to small mountains in the Varzob gorge and high peaks of Pamir to assess conditions of glaciers (June-September). The studies have revealed considerable changes of the Pamir's glacier "Russian Geographical Society", on the surface of which a big lake occurred and stretched to 200 m. It is the alarm signal. Under the effect of lake water, a part of ice may calve from the glacier and block the Abdukahhor River. This could pose the risk of flooding for the population in the Vanj Valley.

A very hot summer of 2018 had a negative effect on glaciers. As a result of increased air temperature and the intensive melting of the Vodif glacier in Gorno-Mastchi district, the rock fell in early July and damaged 200 m of road way. Consequently, the water level in rivers rose sharply by almost 100 m³.

Disaster Prevention

Over 11 months of 2018, 165 emergency and extreme situations were registered in the Republic of Tajikistan, of which 21 ones caused physical damage to the national economy. Particularly, Tajikistan faced hazardous disasters and processes, such as earthquakes, mudslides, groundwater rise, heavy rains, erosion, etc.

To prevent natural disasters, in 2018, necessary actions such as reinforcement of banks and cleaning of river beds of the Panj, Vakhsh and Kafirnigan rivers were taken in the Sogd and Khatlon provinces by local emergency agencies and local authorities.

The Emergency Committee with the financial support of the WB, the Government of Switzerland (SECO), USA (USAID), the Aga Khan Agency (Habitat) and the Government of Japan installed a modern early warning monitoring system at the Usoy dam.

To support the country in its disaster prevention efforts, the Government of Tajikistan and the ADB have signed a grant agreement for the amount of \$10 million. Additionally, the European Commission has allocated €60,000 as a humanitarian finance to provide emergency assistance to the communities suffering from floods in the south of Tajikistan.

Foreign Investments

In 2018, foreign investors contributed to Tajikistan 6.1 billion somoni (\$645 million), of which 3 billion somoni (\$326 million) are direct foreign investments for the development of education, energy, transport and agriculture. In total, 69 investment projects are underway in the country for the total amount of 30.5 billion somoni or \$3.23 billion. Those include 23 grant projects, 12 loans and 34 mixed financing projects. The investments are made in 9 education and social protection projects, 23 agricultural and irrigation projects, 11 energy projects, 16 transportation projects and other areas. From the beginning of implementation of these projects and by 1 January 2019, the half of the total amount allocated to these projects – 15.5 billion somoni (\$1.64 billion) – has been used. Particularly, in 2018, 3.9 billion somoni was used (\$418.6 million), which is 96% of the expected volume. The on-going projects are financed by the ADB (\$743 million), WB (\$594 million), Eximbank of China (\$467 million), EBRD (\$403 million), IDB (\$148.6 million), etc.

Foreign Policy and International Cooperation

In 2018, with the purpose to strengthen and expand friendship and cooperation, seek for new ways of development and deepening of relations with the majority of countries all over the world as well as to take part in high-level forums, the President of Tajikistan Mr. Emomali Rakhmon repaid a state visit to the Republic of Uzbekistan; made 3 official visits (Kazakhstan, Azerbaijan and Japan) and 7 working trips (USA, Russia, China, Kazakhstan and Turkmenistan).

Major international events:

In relation to the beginning of the 2018-2028 International Decade for Action "Water for Sustainable Development" and based on the initiative of the President Emomali Rakhmon, a high-level event was held on 22 March in New York. At the beginning of the session, Mr. Mahmoud Saikal, GA Deputy Chairman, shared the purposes of this high-level event. Antonio Guterres, the UN Secretary General, underlined

the importance of global initiatives of the President Emomali Rakhmon and shared the impressions of his last visit to Tajikistan. In his speech the President of Tajikistan mentioned 5 global challenges related to water resources, such as climate change, population growth, gender, funding for plans and actions, and transboundary component of water cooperation.

The 23rd Session of the ECO Council of Foreign Ministers was held and adopted the Dushanbe Declaration (17 April, Dushanbe). The Declaration provides for further development of cooperation in transportation, energy, tourism, economy and social area, as well as in environmental conservation.

The International High-Level Conference on the International Decade for Actions "Water for Sustainable Development, 2018-2028" was held on 20-21 June, Dushanbe. See section "Major events in the CA countries" for more details.

The Tajik Minister of Energy and Water Resources Mr. Usmonali Usmonzoda took part and spoke at the Ministerial Conference of the 8 World Water Forum (19-20 March, Brasilia). The Head of Tajik Delegation was speaking about water issues in Central Asia and successes in reformation of the national water sector.

The Tajik delegation headed by Colonel Jamshed Makhmadzoda, Deputy Chairman of the Committee for Emergency Situations and Civil Defence under the Government of Tajikistan participated in the Regional Forum of the Heads of Emergency Agency of the Central Asia countries (27 April, Almaty). A range of projects on strengthening of regional cooperation in the CA countries in the area of disaster risk mitigation and emergency prevention and liquidation was discussed. Based on the results of the meeting, the final document was agreed.

The Ambassador Extraordinary and Plenipotentiary of the Republic of Tajikistan to the Russian Federation Imomuddin Sattorov in his speech at the II All-Russian Water Congress on 5-7 June told about international initiatives of Tajikistan as a country, which possesses advanced experience in water area, and on preparation to the International High-Level Conference on the International Decade for Actions "Water for Sustainable Development, 2018-2028", as well as the main tasks and purposes of this Conference.

The UN Resident Representative of the RT Makhmadamin Makhmadaminov participated

in the opening ceremony of the Political Highlevel Forum on Sustainable Development under the aegis of UN's Economic and Social Council (ECOSOC). Mr. Makhmadaminov, as a Vice-President of the ECOSOC, chaired the interactive session "SDG 6 – Ensuring accessibility and sustainability of water and sanitation for all" (9 July, New York).

The President of Tajikistan Emomali Rakhmon participated in the Summit of the Heads of IFAS founder-state on 24 August in Turkmenbashi. For more details see section "XII Summit of the Heads of IFAS Founder-State".

The Tajik delegation participated also in the 12th Session of the SPECA Economic Forum (19 September, Almaty). The SPECA regional strategy, particularly, simplification of trade procedures, regional cooperation for achievement of the goals of sustainable trade and regulation of non-tariff trade measures were discussed during the session. The "SPECA National Strategy on Trade Mechanism" was drafted to develop trade cooperation and submitted to the Governments of SPECA member-states for agreement.

International Agreements:

The signing ceremony for the Agreement between the IFAD and the Government of Tajikistan on financing the Community-Based Agricultural Support Project in the amount of \$39.3 million was held on 8 February in Italy, Rome. The project aims to improve living conditions of more than 48,000 of low-income families in such towns and districts of Tajikistan as Devashtich, Shakhrsitan, Dusti, Jaikhun, Nurek, Rasht and Tajikabad.

Tajikistan and Belarus signed 15 documents on cooperation between various agencies of the two countries on 15 May in Dushanbe. Additionally, a plan of consultations between the Ministries of Foreign Affairs for 2019-2010 was signed. The parties considered a new package of cooperation documents signed during the official visit of the President of the Republic of Belarus to Tajikistan as an impetus for development and expansion of potential relations between the two countries.

Based on the results of inter-governmental meetings and negotiations between the RT and the Russian Federation, a signing ceremony for bilateral documents was held on 31 May in Dushanbe. During the event, the parties addressed the issues of cooperation in the area of economy, trade, energy, agriculture,

industry, roads and transport, education and science, investments, public employment and others.

As part of the state visit of the President of India Ram Nath Kovind to Tajikistan, 10 new cooperation documents were signed on 8 October.

Particularly, the Heads of State have signed memorandums on cooperation between the governments of two countries in the area of disaster management and application of space technologies for peaceful purposes.

Sources:

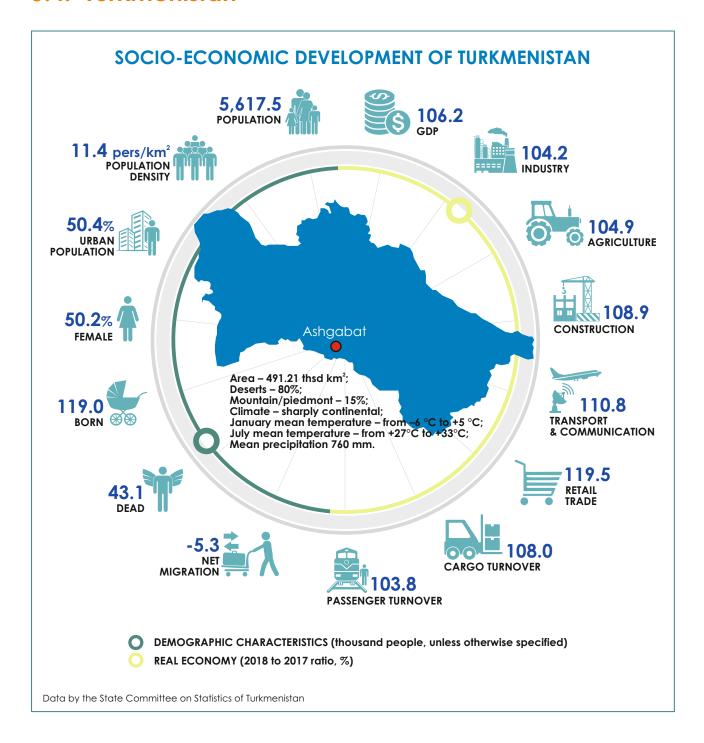
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5.4. Turkmenistan



General Information

Water resources. The total volume of water resources of Turkmenistan used by economic sectors is comprised of the surface runoff of the Amu Darya, Murgab, Tedjen, and Atrek rivers, as well as the small water courses of northeast slopes of Copetdag, and insignificant groundwater resources and collector-drainage waters. 95% of surface water in the water balance of Turkmenistan are formed outside the country and have a transboundary status. 88%

of all surface water in the country comes from the Amu Darya. The Karakum River plays an important role in meeting the needs for water. It is the biggest hydro-technical facility in the world (1,380 km in length). It irrigates approximately 1 million ha of lands. The unit water supply for population is 4,000 m³/per capita a year.

Energy. Energy sector is comprised of 9 gas-fired TPPs and one hydropower plant: Mary, Turkmenbashi (former Krasnovodsk), Abadan

(Bezmeinsk), Balkanabad (Nebitdag), Seyd, Ashgabat, Dashoguz, Avaz, Akhal and Gindukush HPP, which is the eldest in the energy history of Turkmenistan. The country is entirely self-sufficient in electricity and even exports it to Iran, Turkey and other countries. Energy potential is continuously developed: new power plants and transmission lines are constructed and existing energy facilities are reconstructed.

New Legislation

In 2018, 5 meetings of the National Parliament were held, 61 laws and 66 decrees of Mejlis were adopted. The following laws and regulations can be mentioned in water, agriculture and environmental spheres:

The Law on state regulation of agricultural development (No. 29-VI of 09.06.2018) specifies the main purposes and mechanisms of implementation of the National Agricultural Development Program covering the key areas of agriculture and forestry, food and goods production;

The Law on reclamation of land (No. 76-VI of 20.10.2018) defines legal, economic and institutional framework for reclamation of land and regulates relevant relations;

The Law on making changes and amendments to the "Law On environmental expertise" (No. 685-V of 05.01.2018, No. 54-VI of 09.06.2018) specifies that environmental expertise is based on the principle "...be bound by requirements of environmental safety while making an environmental expertise" and that "...state environmental expertise, public environmental expertise and independent environmental expertise, known as the environmental audit, are implemented in Turkmenistan...";

The Law on amending the Water Code of Turkmenistan ("Vedomosti" of the Mejlis of Turkmenistan, No. 4, 20.10.2018), according to which the executive branch of the government responsible for licensing of exploration, surveying and exploitation of water aquifers and permitting of well drilling for water abstraction "...defines the payment and charges and transfers it to its operating account in accordance with the procedures established by the legislation of Turkmenistan...";

The Law on making changes and amendments to the Land Code of Turkmenistan ("Vedomosti" of the Mejlis of Turkmenistan, No. 3-4, 01.12.2018) makes the amendment that land for

agricultural production shall be given for temporary use out of special land fund to joint stock companies, daikhkan farms and other legal entities of Turkmenistan. Provincial authorities shall approve the decision of the provincial Land Commission on the allocation of land plots for temporary use;

The Law on making changes and amendments to the Law of Turkmenistan on drinking Water (No. 104-VI of 01.12.2018), which makes amendments concerning the payment for water used by population for free within the established limits;

The Decree on further improvement of agricultural reforms (Khalk Maslakhaty of Turkmenistan, 25.09.2018) defines the key areas of activity aimed at improving the agricultural sector, increasing the number of private producers in agriculture and using land and water resources sustainably;

The Law on environmental audit (Mejlis of Turkmenistan, 02.03.2019) defines the legal and institutional framework for environmental audit and is aimed at increasing environmental soundness and efficiency of economic entities.

Water Sector

Geographical location and natural and climatic conditions of Turkmenistan predetermine that water resources are limited. The decline in water resources makes it necessary to reconsider irrigation methods and improve productivity of irrigation systems through their modernization.

Among the state governance bodies dealing with water use and protection in Turkmenistan are the Cabinet of Ministers of Turkmenistan, the Ministry of Agriculture and Water Management, the State Committee of Turkmenistan on the Environmental Protection and Land Resources, the State Concern "Turkmengeologiya", the National Institute of Deserts, Flora and Fauna, the Ministry of Energy, and the Ministry of Utilities.

The Murgab River Basin Council, the first water management organization at basin level, has started its work in Turkmenistan. The small Basin Council includes representatives of water-management organizations, velayat (province) and etrap (district) authorities, and daihan agricultural and water associations. It has been planned to reconstruct some sections of the oldest national water system – the Sariyazin

reservoir and its dam, as well as the lolotan, Kolkhozbent and Gindukush hydroschemes.

The work on **construction of new reservoirs** and extension of existing ones is underway. Dozens of structures were constructed for the water reservoir named "15 years of independence in Turkmenistan". Reconstruction of the first connecting canal, which takes its origin in the Amu Darya has been completed. The length is more than 40 km and the width is 120 m. The canal has allowed increasing the flow capacity to 400 m³/s. At present, the reservoir regulates river flow to ensure normal flow of the Amu Darya water along the Karakum River to the valleys of Murgab and Tejen, the Prikopetdag plain and the western Turkmenistan. The manmade lake delivers clear water to the river within the pre-set parameters. Construction of the second extension of the reservoir, with the storage capacity of more than 3 billion m³ was started. The construction of Turkmen Lake "Altyn Asyr" is still underway to normalise operation of drainage systems, lower the water table, improve conditions of land and enrich the desert biodiversity.

As part of the "Master Plan on drinking water supply to settlements", staff of the hydrogeological expedition from the State Corporation "Turkmengeologiya" has completed work in Akhal veloyat on exploration of groundwater and accurate determination of their reserves. The regime, balance and salinity of groundwater are under continuous observation. 90 new wells, 100 to 150 m deep, are ready for exploitation; 200 wells were reconstructed to supply water to district centers and daihan associations in the territory from Serakhs to Bami.

A system of water treatment facilities was put into operation in Takhtabazar district of Mary province. Water treatment facilities are also constructed in Khalach, Deinau, Sayat and other districts of Lebap province. Water conduits are laid together with the construction of drinking water plants.

The Kaahka-Khivabad gravity-flow conduit, about 15 km long, has been opened to regulate water supply for agriculture, drinking and household needs. On a daily basis, the conduit delivers 14,256 m³/day (165 l/s) from the Laiynsuv River.

To build capacities of water-management organizations, provincial and district authorities and daihan associations for efficient water management and application of up-to-date technologies, a range of workshops, trainings,

round-tables and webinars was held as part of on-going projects (see Section "Regional and National Projects" below).

Agriculture

The State agrarian policy of Turkmenistan is aimed at ensuring abundant food, stable growth in agricultural production and output, and building capacities of daihan associations, lease holders and entrepreneurship.

Agricultural producers are provided with various state benefits, including those oriented at the reduction of production costs. For the financial support to agricultural producers relevant banks of Turkmenistan are allowed to provide concessional loans to daihan associations and farms, agricultural joint stock companies, specialized research institutes, land owners and lease tenants, and private entrepreneurs working in the agro-industrial sector. The agricultural producers can receive a concessional loan for 10 years at annual 1% interest rate to buy agricultural equipment, mechanisms and tools as well as excavators and bulldozers, and water-saving equipment. Also, they can receive a concessional loan for the period of 10 years at 5% interest rate for the projects focused on the development of cattle farming, poultry, processing and related services.

The size of special land funds dedicated for agricultural use and comprising the agricultural land of daihan associations was defined and approved. The plots of land are provided to joint stock companies, daihan farms and other legal entities and people for the period up to 99 years.

The minimum payment for land was set for farmers and they are totally tax exempted. Machinery, seeds, mineral fertilizers, irrigation water and other inputs are provided on concessional terms. Since $5^{\rm th}$ of October 2018, a credit line has been opened for settlement of accounts with cotton producers. Depending on cotton variety, the initial amount of 60 or 80 tenge per 1 kg of raw cotton is paid to producers.

Daihan farms and agricultural joint stock companies are granted the right to keep the excessive production after they meet the contractual obligations and sell it at their own price.

Huge investments are made in the construction of new cattle and poultry factories, greenhouse farms, agro-industrial processing

enterprises and refrigerator warehouses in the country. The State buys modern agricultural equipment and machines: grain-harvesting and cotton-picking combines, various types of tractors, and so on from the leading world producers, such as <u>John Deere</u>, CLAAS and others.

Moreover, particular attention is paid to diversification of agriculture, promotion of innovations in agricultural production, sustainable methods of irrigation and crop production, and agro-biotechnology and seed farming.

Energy

The energy sector of Turkmenistan keeps developing and increasing its generating capacity. While constructing energy projects, special attention is paid to the environmental safety of energy structures and their provision with up-to-date equipment. "The Concept of Turkmenistan on the energy development for the period of 2013-2030" is under implementation. As part of the Concept, outdated energy structures undergo reconstruction and new structures will be built and put into operation. The first in Turkmenistan combined-cycle thermal power plant was put into operation in Mary province. This power plant is environmentally friendly, almost waste-free and resource saving. The fuel sources of the plant include gas and steam. At the same time, its performance will increase 1.5 times: from 34.2 up to 57%, and harmful emissions into the atmosphere will be three times less. Fuel consumption will also be reduced.

International energy collaboration is a priority for Turkmenistan:

- As part of the International Energy Forum, International Conference "The main directions of energy development in Turkmenistan" and the 11th International Exhibition were organized (6-8 September, Ashkhabad).
- The Agreement on the transmission line Turkmenistan-Afghanistan-Pakistan (TAP) was signed between the Ministry of Energy of Turkmenistan and the Ministry of

- Energy and Water of the Islamic Republic of Afghanistan (11 October, Ashkhabad);
- The Turkmen delegation participated in the work of the 29th session of the Energy <u>Charter Conference</u>. Based on the results of the Conference, the Bucharest Declaration was adopted (27-28 November, Bucharest).

Environment and Climate Change

Protection of the nature and environmental friendliness are the priority directions of the national policy.

The National strategy of Turkmenistan on biodiversity conservation for the period of 2018-2023 was developed (the document is at approval stage now). The Strategy defines the key areas of work, based on commitments made under the Convention on Biological Diversity. The main goal of the Strategy is to achieve a sustainable balance between economic development and environmental continuity by 2025. Preparation of the 6th National report under the Convention on Biological Diversity was started.

The review of the **National Strategy of Turk-menistan on climate change** under the international obligations of Turkmenistan on implementation of the UN Framework Convention on Climate Change (UNFCCC), the Paris Agreement and in the context of SDGs was started. The Turkmen delegation participated in the <u>Central Asian Conference on climate change</u> (24-25 January, Almaty) and in 7^{th 11} and 8^{th 12} meetings of the EU-CA Working Group on environment and climate change (6-7 February, Brussels; 7-8 June, Tashkent).

The country is consistently moving to environmentally friendly and resource-saving technologies in industry, including oil and gas, energy and chemical sectors.

Turkmenistan has joined the UN initiative "<u>Sustainable cities</u>", particularly started the project "<u>Sustainable development of cities in Turkmenistan: comprehensive development of green cities in Ashkhabad and Avaz</u>" with the support of GEF and UNDP.

Resolution of the 7th Meeting of the EU-CA Working group on environment and climate change http://wecoop2.eu/sites/default/files/documents/7WGECC/Newsletter%2520FEB%25202018_EN.PDF

Resolution of the 8th Meeting of the EU-CA Working group on environment and climate change https://wecoop2.eu/sites/default/files/documents/8WGECC/Summary%20by%20the%20Chair%208th%20WGECC%20final%20IMELS%20EN% 201207-6.pdf

The National Forestry Program is on-going. As part of the Program, the workshop "Forest biodiversity conservation in the context of climate change" and greening campaigns were organized.

The International Science-to-Practice Conference "Turkmenistan in the heart of the Great Silk Road – a region of ecological well-being" was held on the occasion of the World Environment Day (5 June, Ashkhabad).

Turkmenistan Chairmanship in IFAS

A meeting of the IFAS Board was held at the level of the Deputy Heads of Government of Turkmenistan, Kazakhstan, Tajikistan and Uzbekistan. The work plan of the EC IFAS for the period of Turkmenistan chairmanship was discussed. The Plan includes the development of the UN special program's project for the Aral Sea basin, based on negotiation among the founder-states of IFAS, ASBP-4; the formation of national and regional expert groups for consultations with international organizations and partners to support the development of REPSD CA, as well as the matters related to preparation of the Summit of the Heads of IFAS Founder-State (30 January, Ashkhabad).

Prior to the Summit, the 74th meeting of ICWC, the ICSD work meeting (22 August, Turkmenbashi), and the extraordinary meeting of the IFAS Board (23 August, Turkmenbashi) were held.

The Summit of the Heads of IFAS founderstate took place in the National Tourist Zone "Avaza" on 24th of August. The Heads of State have underlined the importance of the development of ASBP-4 and REPSD CA. Also, they found necessary to consider a possibility for the development of the UN Special Program for the Aral Sea Basin and requested the EC IFAS to hold consultations on this matter with the region's states and the UN member states and its agencies. The IFAS Board was requested to develop a Plan of Measures for implementation of the reached agreements and to ensure control over its fulfilment. Based on the results of the Summit, a Joint Communiqué was adopted. (For more details see section 3.1.2. "XII Summit of the Heads of IFAS Founder-State").

Following the Summit, the Ministry of Foreign Affairs of Turkmenistan had a briefing with participation of the heads of EC IFAS, diplomatic missions, representatives of international and non-governmental organizations, environmentalists and media (27 August). The partici-

pants underlined the importance of the Summit and expressed confidence that proposals and initiatives mentioned in the Joint Communiqué would determine the key directions of IFAS activity and would be reflected in practical steps for environmental improvement in the region.

Cooperation on the Caspian Sea

The delegation of Turkmenistan took part in the following events: First International Conference "Caspian Sea in XXI century: Cooperation and Security" (28 September, Astana); V Summit of the Heads of Caspian State (12 August, Aktau); Session of the Coordination Committee on Hydrometeorology of the Caspian Sea (CASCOM) (30-31 October, Ashkhabad); meetings of the working groups on the development of environmental documents (25 October, Ashkhabad); workshop "The Caspian Sea -Sustainable Development and Management" (5-6 March, Tourist zone "Avaza"); applied conference and festive events linked to the Caspian Sea Day (12 August, Tourist zone "Avaza"). Turkmenistan is continuing scientific and environmental activities on the Caspian Sea. (For more details see section 12.2 "Caspian Sea: Special Legal Status")

SDGs in Turkmenistan

Turkmenistan was the first country, which started consultations on adaptation of SDGs to the national context.

The National Working Group on SDG implementation in Turkmenistan together with the UN held a working meeting to discuss the results and recommendations of the UN mission for implementation and acceleration of SDGs (30 March, Ashkhabad). During 2018, meetings, roundtables, and an International Conference dedicated to SDG financing and other events were organized together with the UN.

Since 1st of October, the UN Office in Turkmenistan, the SDG Center and the Ministry of Foreign Affairs of Turkmenistan have started the SDG Month in Ashkhabad: trainings to raise awareness about SDGs; the workshop on financing the Global Agenda; student debates; UN model and the SDG dance festival. Additionally, the Competition "SDG Young Ambassadors" was launched.

The work on the volunteer national review and the report on implementation of the Agenda 2030 in Turkmenistan is underway as preparation for the High-level Political Forum to be held in July 2019.

The Ministry of Foreign Affairs of Turkmenistan organized a SDG roundtable (19 December), where practical implementation of SDGs was discussed. "The year 2018 laid a foundation for implementation of 148 out of 169 tasks under SDGs, which would be achieved by Turkmenistan over the midterm in three key strategic areas – economy, social sector, and environment."

Regional and National Projects

The Project "Integrated natural resources management in drought-prone and salinized rural landscapes in Central Asia and Turkey" (FAO, GEF) is aimed to reduce risks and vulnerability, increase resilience of rural communities to droughts and salinization and adaptation to them. The project is implemented in three pilot areas in Turkmenistan, characterized by different soil and climatic conditions and covering desert pastures, forests, irrigated and rainfed land. Project activities are to promote achievement of SDGs and implementation of international obligations by Turkmenistan on three global environmental conventions – on combatting desertification, biological diversity, and climate change.

As part of the project "Supporting climateresilient livelihoods of rural communities in dry regions of Turkmenistan" (UNDP, GEF), the following actions were undertaken in 2018:

- organization of resource centers to provide daikhans with information and consultation support;
- allocation of funds for modern irrigation technologies, equipment, machinery and construction of transmission lines in livestock farm "Karakum" and daikhan association "Parakhat";
- learning of AquaCrop, ClimWat, and EToCalculator software models; assistance to pilot farms in four districts of Lebap and Dashoguz provinces in preparation and implementation of adaptation plans for agricultural production and water management;
- elaboration of proposals on changes and amendments in the laws of Turkmenistan on daikhan associations and on daikhan farms:

two-day practical trainings in land levelling using laser technology in pilot sites of Lebap and Dashoguz provinces; training in crop irrigation scheduling using the FAO methodology.

As part of the project "Energy efficiency renewable energy for sustainable water management in Turkmenistan" (UNDP, GEF), the following actions were undertaken in 2018:

- demonstration activities in the project site in Geoktepe, where farmers were presented the innovation laser equipment for land leveling; two-day training in handling geodesic equipment of global positioning system (GPS), and a workshop for irrigators;
- gravity-flow Kaahka-Khivabad conduit, 15 km long, was launched; a roundtable was organized to present results, environmental benefits and recommendations on operation of gravity-flow conduits.

Within the frame of "<u>Smart Water Project</u>" (USAID–CAREC) in 2018, a basin council was established and its meetings were organized. In addition, the CAREC's information and training class was launched at the National Institute for Deserts, Flora and Fauna of Turkmenistan.

As part of the "Central Asia Nexus Dialogue Project: Fostering Water, Energy and Food Security Nexus Dialogue and Multi-Sector Investment" (CAREC – IUCN, with the financial support of EU), a range of events of the Interdepartmental Working Group on the development of multi-sector investment projects for achievement of water, energy and food security in Turkmenistan was held.

Foreign Policy and International Cooperation

769 delegations of different levels visited Turkmenistan in 2018 through the Ministry of Foreign Affairs, and 608 Turkmen delegations had abroad visits. Multiple events were organized in Turkmenistan and abroad: conferences, meetings and other events. In total, 58 meetings with representatives of foreign countries and international organizations were held over 2018. Turkmenistan has joined 5 international conventions.

In 2018, Presidents of Afghanistan (February); Iran (March); Kazakhstan (August); Kyrgyzstan (August); Tajikistan (August), Uzbekistan (August) and Azerbaijan (November) had official and working visits to Turkmenistan.

The President of Turkmenistan made state, official and working visits to Kuwait and United Arab Emirates (March), Uzbekistan (April), Tajikistan (June), Tatarstan (July), Kazakhstan (August), and Russia (August, December).

The priority areas of the Turkmenistan foreign policy include contribution to peace, stability and safety, as well as progressive achievement of the UN SDGs and strengthening of friendly relations and cooperation in the region and beyond.

Involvement in UN Activity

Based on the initiative of Turkmenistan, the draft resolution "Cooperation between the United Nations Organization and the International Fund for saving the Aral Sea" (12 April, New-York) (see section "General Assembly") was adopted at the 82nd meeting of the 72nd UN GA Session. Turkmenistan was elected a member of the UN Economic and Social Council (ECOSOC) during the 96th meeting of 72nd UN GA Session for 2019-2021 (13 June, New York). The Turkmen delegation participated in the work of the Highlevel Political Forum under the ECOSOC aegis on the theme "Transformation towards sustainable and resilient societies" (9-13 July, New-York).

The President of Turkmenistan speaking at the 73rd UN GA Session voiced the priority positions of the country on topical regional and global challenges as well as constructive initiatives aimed to further enhance and deepen fruitful international cooperation (25 September-1 October, New York). The President mentioned the issue of saving the Aral Sea as one of the most important for cooperation between the countries in the region and called the international community for joint measures and support of the Turkmenistan's initiative on the development of the UN Special Program for the Aral Sea Basin. He also proposed to consider the Aral Sea problem as a special area of the UN's activity (for more details see section "General Assembly"). During the visit, the Head of State met Antonio Guterres, the UN Secretary General. The parties paid particular attention to contribution of the neutral Turkmen State to settlement of situation in Afghanistan and resolution of the Aral Sea problem.

Cooperation with the EU

The cooperation between the EU and Turkmenistan is continued on a regional scale, i.e. with participation of all five Central Asian countries. The 14th EU-Central Asia ministerial meeting has become the key one among the series of negotiations, meetings and other events related to the development of the EU Strategy in the region. Based on the results of the meeting, a Joint Communiqué was adopted 13 (23 November, Brussels). Following the meeting of the EU-Turkmenistan Partnership Council, EU made a decision to open in Turkmenistan its diplomatic mission in 2019.

The Minister of Foreign Affairs of Turkmenistan Rashid Meredov had negotiations with Peter Burian, EU special representative in the CA countries. A wide range of matters of mutual interest, such as education, legislation, transport and energy, water management and environment, including climate change was discussed (23 May, Ashkhabad).

Major international events

Turkmenistan delegation participated in the following events:

Central Asian International Environmental Forum (5-8 June, Tashkent). During the closing ceremony, the representative of Turkmenistan Mergen Jusupov read the message of Batyrmurad Orazmuradov, Chairman of the State Committee on Environmental Protection and Land Resources. "This Forum also has become an evidence of the efforts on developing close cooperation in environmental conservation", was underlined in the message. The main result of the Forum was the impetus for active cooperation.

International High-level Conference on International Decade for Actions "Water for Sustainable Development", 2018-2028 (20 June, Dushanbe). Speaking at the Conference, the President Gurbanguly Berdymuhamedov stated that water issues, including political, economic, social aspects, require international consensus and consolidation of efforts of the states all over the world. Moreover, local interests and benefits should give way to the understanding of global goals and priorities and

¹³ Text of the Joint Communique of the Ministerial meeting "EU-Central Asia" https://eeas.europa.eu/delegations/uzbekistan/54354/joint-communiqu%C3%A9-european-union-%E2%80%93-central-asia-foreign-ministers-meeting-brussels-23-november_en

the elaboration of a common long-term water strategy. The President of Turkmenistan has applied to the CA states and the UN Secretariat to consider the establishment of a special UN structure on water issues for CA.

The regional meeting on strengthening multi-sector water cooperation and bringing water higher in the sustainable development agenda, where the issues of transboundary water management were discussed (12-13 July, Almaty). The participants addressed the existing problems and possible ways of developing multi-sector water cooperation at the regional level and discussed how to bring water higher in the SDG agenda, as well as developed regional proposals that could be supported under the future program of work of the International Water Assessment Center (IWAC).

Representatives of small basin councils took part in the first Forum of small basin councils of the CA and Afghanistan (26 November, Bishkek). The Forum brought together representatives of small basin councils, relevant ministries and agencies in the region, as well as international organizations and projects.

Cooperation with ADB

ADB takes active part in financing of investment programs and projects in Turkmenistan. The work plan proposed by the Bank provides for investments in the Turkmen economy for the period of 2019-2021 in the amount of about \$1 billion. It is expected that during implementation of the projects this volume can be considerably increased.

The President of Turkmenistan during the meeting with the ADB President Takehiko Nakao (14 November, Ashkhabad) proposed the ADB to consider the possibilities of investing in water treatment plants.

Cooperation between ADB and Turkmenistan is maintained also under the Central Asian Regional Economic Program (CAREC). 17th ministerial conference of the CAREC Program was held with participation of representatives of the CAREC Program, ADB, WB, Islamic Development Bank, CAREC Institute, EU, EBRD, USAID (15 November, Ashkhabad).

Sources:

The official web-sites:

Ministry of Foreign Affairs (www.mfa.gov.tm); The Ministry of Justice (http://minjust.gov.tm); The Central Bank (www.cbt.tm/en/index.html); EC IFAS (http://ecifas.gov.tm).

Information agencies and sites:

http://tdh.gov.tm/en/;
www.turkmenistan.gov.tm

5.5. Uzbekistan



General Information

Water resources. The water resources of Uzbekistan consist of renewable surface water and groundwater of natural origin as well as return water from anthropogenic uses (sewage and drainage waters). Water resources are formed both in transboundary basins and in local surface water sources and aquifers. There are 17,777 natural watercourses in Uzbekistan, of which 9,930 are in the Amu Darya Basin and 4,926 are in the Syr Darya Basin. More than 500

lakes are located in mountain river-valleys, and Aydar-Arsanay is the biggest lake system. Glaciers are situated in the upper reaches of some rivers, mainly, in the catchment of the Pskem River, with the average area of one glacier at 0.29 km². Water resources are formed mainly through melt water: 60% in the Syr Darya and the Amu Darya basins. Rain and glacial water are the additional sources of water: 15 and 25%, respectively, in the Amu Darya Basin; and, 25 and 15%, respectively, in the Syr Darya Basin. The total regional groundwater reserves

are estimated at 18.45 km³. The total usable groundwater resources amount to 7.8 km³.

The Ministry of Water Management (surface water) and the State Committee on Geology and Mineral Resources (groundwater) are the designated state agencies for water use regulation

New Legislation

Resolution of the President of Uzbekistan "On measures for improvement of water use efficiency" (No. PP-3823 of 02.07.2018) was adopted and set a new tax for water use (from surface and groundwater sources) by entities of all economic branches, industry, communal services, etc.

Several legal acts have been amended and changed. Those are aimed at bettering land legislation (No. ZRU-487 of 28.06.2018) and improving a mechanism for efficient use of cropland (No. ZRU-506 of 13.12.2018); additional measures are planned to speed-up the process of horticulture development (No. UP-5388 of 29.03.2018), development of water supply and sanitation systems (No. PP-4040 of 30.11.2018), support accelerated development of silk industry (No. PP-3910 of 20.08.2018), fisheries (No. PP-3657 of 06.04.2018), and karakul sheep breeding (No. PP-3603 of 14.03.2018); radically improve the financing system of raw cotton and cereals production (No. PP-3574 of 28.02.2018); create additional conditions for development of greenhouse farming (No. PP-4020 of 28.11.2018); as well as measures for achievement of country's food security (No. PP-5303 of 16.01.2018) and organization of activity of the Inspection for control over agro-industrial production and achievement of food security at the Prosecutor General's Office of Uzbekistan (No. PP-3699 of 07.05.2018).

The President of Uzbekistan has approved the Strategy of Innovation-Driven Development in Uzbekistan for 2019–2021 (No. UP-5544 of 21.09.2018). The document sets the main tasks of the Strategy, approves the Roadmap for implementation of the Strategy and the target indicators of innovation development of Uzbekistan up to 2030. The document also gives the directive to provide regularly necessary data and indicators for inclusion of Uzbekistan into the rating of the Global Innovation Index. A special Commission for proper and timely implementation of the Strategy was established as well.

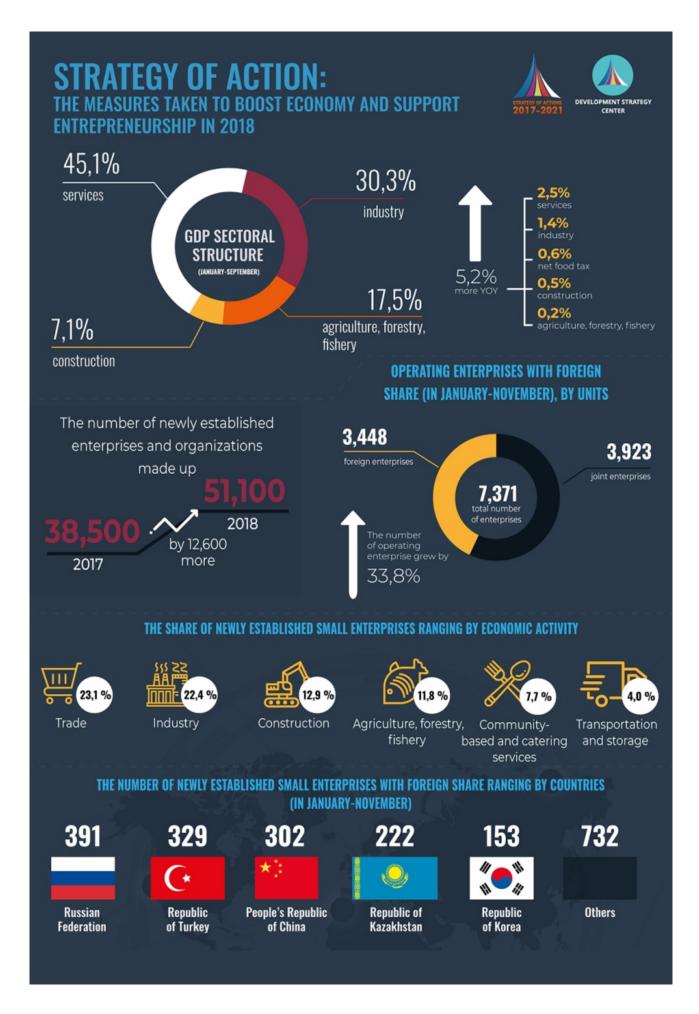
Implementation of National Strategies and Programs in 2018

On implementation of the Strategy of Actions on five priority development directions in the Republic of Uzbekistan for 2017-2021, approved in 2017 (UP-4947 of 07.02.2017).

2018 – announced as the Year of support of active entrepreneurship, innovative ideas and technologies – is marked with extensive measures to adopt latest scientific achievements, innovative ideas and technologies in national economy. For putting of this State Program in place, 76,000 projects were implemented in the amount of 21 trillion sum and \$1 billion. According to the programs "Obod Kishlok" and "Obod Mahalla", 3 trillion sum was allocated to create better living conditions in more than 400 villages and makhalyas of the country. About 2 trillion sum was allocated for more than 2600 business-projects at local levels as part of the Programs "Every family - entrepreneur" and "Youth is our future". A Concept for the improvement of taxation policy of Uzbekistan was adopted. The Concept is aimed at encouraging economic development, improving business environment and investment attractiveness, increasing income of population and lowering tax burden on business. For example, the reduced rate of unified social tax down to 12% and cancelled obligatory payments charged on profit of legal entities to the state special-purpose funds have allowed enterprises to keep their extra-profit. In 2018, agreements for the amount of \$50 billion were reached under investment projects. As part of priority 3 "Economy development and liberalization", in order to take systematic measures for mitigation of negative effects of global climate change and drying up of the Aral Sea, the UN Multi-<u>Partner Human Security Trust Fund</u> for the Aral Sea Region was launched, and the International Innovation Center for the Aral Sea Basin was established at the President of Uzbekistan.

On implementation of initiatives and proposals of the President of Uzbekistan voiced during the Summit of the IFAS Heads of Founder-State. By the order of the Cabinet of Ministers of Uzbekistan, No. 965-F of 16.11.2018, the Action Plan ("Roadmap") was approved. This Plan lists national programs and projects. Within the framework of the Roadmap, the following actions were taken in 2018:

 The UN Multi-Partner Human Security Trust Fund for the Aral Sea Region was established (See details in section "<u>UN Development Program</u>");



- The work was started on preparation to and organization of the international high-level conference under the aegis of the UN – "Prearalie – the area of environmental innovations and technologies";
- The Concept for "Prearalie the area of environmental innovations and technologies" is under development;
- The resolution "On the establishment of International Innovation Center for the Aral Sea Basin at the President of Uzbekistan" (No. PP-3975 of 16.10.2018) approves the establishment of the Center, with the scientific and technical support of the Islamic Development Bank and the International Center for Biosaline Agriculture (ICBA), and sets tasks and directions of the Center's activity. The resolution also approves the establishment of a special Fund for innovation support in Pregralie. During the International Forum "Innovative approaches for promotion of sustainable management and social stability in the Aral Sea Basin" dedicated to the Aral Sea problem, the Memorandum of Understanding was signed between the Ministry of Innovation Development and the ICBA (16-18 October, Samarkand). See more about activities of the Center at https://iicaralsea.ora:
- Afforestation is undertaken on the dried bed of the Aral Sea (see section "Afforestation on the bed of the former Aral Sea in Uzbekistan");
- Additional support was got for the Project "Creation of small local water bodies in the Amy Darya Delta".

Reforming Public Agencies

The Ministry of Water Management was established in Uzbekistan. According to the Decree of the President of Uzbekistan "On arrangements for thorough improvement of the state administration system in agriculture and water management" (No. UP-5330 of 12.02.2018), on the base of the Ministry of Agriculture and Water Resources of Uzbekistan (MAWR) two separate ministries - the Ministry of Agriculture (MAC) and the Ministry of Water Management (MWM) – were established. The following institutions were also formed: Inspection for control over agroindustrial production and achievement of food security at the Prosecutor General's Office; Agricultural and Food Development Fund at the

MAC; Water Development Fund at the MWM; Agriculture and Food Research and Development Center at the Academy of Sciences of Uzbekistan. The State Bread Inspection at the Cabinet of Ministers, Chief State Inspection for supervision over machinery and equipment, Chief State Inspection on livestock breeding, Republican Water Inspection "Uzsuvnazorat", State Center on certification and control over the quality of seeds "Uzdavurugnazoratmarkaz" were eliminated.

According to the Decree of the President of Uzbekistan "On measures for thorough improvement of the state administration system in agriculture and water management" (No. UP-5418 of 17.04.2018), the Agency for Agro-Industry and Food Projects was established as the legal successor of the Agency for Rural Re-structuring and the Center for Agriculture and Water Investment Projects.

Since January 1, 2019, the Irrigated Land Reclamation Fund at the Cabinet of Ministers of Uzbekistan was abolished. Its functions on formulation of sectoral development programs and as the client for reconstruction and construction of drainage structures, repair and rehabilitation of main (inter-provincial) collectors were transferred to the Ministry of Water Management. The functions on financing of and getting agreement on targeted programs on reconstruction and construction, repair and rehabilitation of drainage systems were transferred to the Ministry of Finance and to the Prearalie Region Development Fund at the Ministry of Finance, which should finance the Prearalie Development Program for the state budget (No. PP-4086 of 26.12.2018).

Water Sector

At present, the total annual amount of water used in Uzbekistan is about 55 km³, including approximately 50 km³ for irrigated agriculture and 3.5 km³ for household and drinking needs of urban and rural population.

Efficient use of land and water resources based on advanced technologies and wide adoption of water-saving technologies in agriculture are mentioned among the main tasks for 2019 in the President's Message to the Oliy Majlis (Supreme Council). The Cabinet of Ministers is to develop a Roadmap for large-scale adoption of water-saving technologies in agriculture. In 2019, the Ministry of Water Management together with the experts from CA countries is to develop proposals on the improvement of water use in Central Asia.

In 2018, farms "Ishtihon Nurli Davr" (Ishtyhan District) and "Marokand Klaster" (Narpai district), as well as the Uzbek-Chinese joint venture "PengSheng" (Syr Darya district) implemented drip irrigation projects that covered more than 200 ha. This allowed achieving crop yields of 40-45 centner/ha, which is 1.5-1.7 times higher than the average yield of raw cotton in Uzbekistan, and saving water.

Resolution of the Cabinet of Ministers "On measures for adoption of modern informationcommunication and innovative technologies in the water sector" (No. PKM-714 of 10.09.2018) was approved. The Resolution sets innovation measures that will be financed through donors' funds. Modernization in the water sector will be based on four main directions: adoption of the on-line system for collection of data on water discharge and other indicators of waterworks facilities, reservoirs, main canals and other important water structures; application of modern technologies and software for crop irrigation and efficient water use; organization of online monitoring over energy consumption and water management at pump stations that belong to the Ministry of Water Management; organization of water inventory using modern information and communication technologies and development of mobile applications. By mid-2019, it is planned to develop and put in place a mobile application for public use which would allow receiving knowledge and information on new water-saving technologies, including drip irrigation.

The Resolution of the President "On urgent measures for creation of favourable conditions for wider application of drip irrigation for production of cotton" (No. PP-4087 of 27.12.2018) was adopted. The document sets the priority directions for further expansion of drip irrigation technology for production of cotton, adopts a "Roadmap" for implementation over 2019-2020. It is tasked to form working groups for promotion of water-saving irrigation technologies and contribution of concrete proposals on a new enterprise in Kashkadarya province for manufacturing of drip irrigation systems and spare parts for them. To support cotton producers who adopted drip irrigation and the producers of drip irrigation systems, the subsidies for introduction of technologies of drip irrigation in the amount of 8 million sum per 1 hectare of cropped area are allocated; the costs related to payment of 10% points of the credit interest rate set by a commercial bank are covered by the state; import contracts are exempted from expertise and registration; spare parts and raw materials become free from custom duties up to 1 January 2021.

In the near-term, Uzbekistan plans to build seven large reservoirs at the total capacity of 0.045 km³: Parkentsoy, Kizilsoy and Toshtepa in Tashkent province; Karman in Farish district of Jizzak province; Guldara and Ayakchisoy in Kashkadarya province; Bulungur in Samarkand province. In 2019, it is planned to allocate 1.7 trillion sum from the state budget and \$84 million from international financing institutions for reclamation of irrigated land.

Drinking Water Supply

Currently, 65% of population has access to improved drinking water supply and 15% of population uses sanitation facilities. Water meters are installed at 43% of households, 94% of wholesale customers and 10% of water intakes. Emergency repairs are needed for 23.7 km of drinking water supply networks (40%), 2,000 km of sewage networks (27%), and 3,598 water intake structures and treatment plants.

To improve the current situation, the President's Decree "On additional measures for development of drinking water supply and sanitation in the Republic of Uzbekistan" (No. PP-4040 of 30.11.2018) was adopted. The Clean Drinking Water Fund at the Ministry of Finance was transformed into the Water Supply and Sanitation Development Fund. Now, the Fund has got additional tasks on financing of programs and projects for construction and reconstruction of sanitation objects. The document introduces a special charge for sanitation services, the size of which is to be approved by the Karakalpakstan Council of Ministers, provincial and Tashkent city authorities upon agreement with territorial financial bodies. The territorial branches of the "Engineering Company on construction of water supply and sanitation objects" are established in all regions of the country (except for Tashkent) on the base of four inter-regional branches. The purpose is to ensure coordination and implementation of taraeted programs on construction and reconstruction of water supply and sanitation objects in 2019 and the next years at the expense of the above-mentioned Fund.

The President's Resolution "On measures for improvement of drinking water supply to the population of Jizzak province" (No. PP-3695 of 04.05.2018) approved "Improvement of drinking water supply in Jizzak province through water of the Zarafshan River" Project. The project provides for construction of water intake structure; water treatment station; "Jizzak" water distribution system; 16-kilometer conduit

from water intake to the water treatment station; 20-kilometer main conduit from water treatment plants; and 146-kilometer main and feeding conduits.

The "Improvement of drinking water supply in rural areas of Prearalie Project" financed by the New World Program (NWP) with the support of the Coca-Cola Fund (TCCF) and the Global Water Challenge (GWC) is ongoing. It is planned to buy and mount new water treatment equipment, repair water distribution station and mount water supply lines. More than 1,948 people will have the possibility to use clean artesian water for their needs. This will improve sanitation conditions of Takhtakupyr district in Karakalpakstan.

Agriculture

Agriculture is one of the key branches of the economy in Uzbekistan. The land used for agricultural production covers 45% of the country's territory. Together with water and forestry management, this branch gives jobs to 3.6 million.

Diversification of agriculture is the important stage of reforms. New reforms call for reducing dependency on cotton through increased export of apricots, cherry, tomatoes, herbs, peaches and persimmon. Also, new opportunities are open to plant potatoes and grapes; beekeeping, poultry, fishery and other types of agrarian business. Farmers have started to grow saffron on 50 ha in 23 districts of the country. This would allow increasing export and developing pharmaceutical branch of the country. 45 horticultural clusters were established and represent the whole cycle of growing, processing and export of produced vegetables and fruits. In 2019, the number of clusters is planned to reach 100.

The volume of output of agricultural production increased 3 times and amounted to 24 million tonnes of horticultural crops, including 11.3 million tonnes of vegetables; 3.1 million tonnes of fruits; 1.7 million tonnes of grapes; and, 2.1 million tonnes of melons and gourds. There are more than 12 million of cattle, more than 20 million of small ruminants, and about 72 million of poultry in the country. More than 2.4 million tonnes of meat, over 10 million tonnes of milk, 37,000 tonnes of wool and more than 7 billion of eggs are produced.

Export was organized to 9 countries of the world, including Spain, Italy, Lebanon, Israel, Vietnam,

Czech Republic, Belgium, the Netherlands and Switzerland.

Cotton growing. In 2018, 6 trillion sum, the amount of guaranteed credit resources on goods, works, services and material and technical resources, were planned for purchasing of raw cotton by the state (approx. \$750 million) (No. PKM-149 of 28.02.2018). 13 projects on introduction of modern forms of cotton-textile production in 11 regions of the country were implemented (in line with No. PKM-53 of 25.01.2018). As an experiment, local textile enterprises were ordering and making advance payments for the raw cotton production directly from farms and other agricultural producers (No. UP-5285 of 14.12.2018). In 2018, first yield of cotton of sustainable development standard, based on BCI-principle (Better Cotton Initiative) was harvested.

Agricultural equipment. The President's Resolution "On additional measures for further improvement of technical conditions of agricultural equipment" (No. PP-3459 of 04.01.2018), which defines an urgent need for provision of modern agricultural equipment for spring agrotechnical work in 2018, was adopted. Particularly, it is expected that 5778 units of equipment, including 758 tillage tractors, 1500 cultivation tractors, 330 tractors for gardening works, 2790 units of farming attachments and towed vehicles, as well as 400 grain combiners will be supplied. The "Concept for further development of agricultural equipment branch of the Republic of Uzbekistan for the period of 2020-2024" was brought for public discussion.

Farmer Councils. The President's Resolution "On additional measures for improvement of the activity of individual and dehkan farms and the owners of households" was adopted (No. PP-3680 of 26.04.18). The document sets the conditions of membership in the Council of individual and dehkan farms that should undertake regular monitoring over targeted and efficient use of land plots. Limited liability companies Tomorkahizmati are established to assist farmers, as well as the Farm Support Fund at the above mentioned Council.

Development of horticulture and viticulture. The Resolution of the Cabinet of Ministers "On measures for improvement of land use efficiency in farms with the purpose of vegetable growing, horticulture and viticulture" (No. PKM-258 of 3.04.2018) was adopted. Recently, the area of gardens and vineyards has extended by 70,000 ha. More than 60 different varieties of apple, about 50 varieties of pear, 43 varieties of grape,

90 varieties of strawberry, 90 varieties of nuts have been bred. Dehkans, farmers and population grew on an area of 179,100 ha 24 varieties of fruit trees and grape bred by the scientists of Scientific-Production Center.

Two exhibitions were organized at the National Exhibition Complex **Uzexpocenter**: the XIII International Specialized Trade Fair of modern equipment and technologies for agroindustrial complex and the VII International Specialized Exhibition of agricultural equipment and machinery (May).

Foreign Investments and Grants

In 2018, the **agricultural sector received**: \$500 million from WB and \$198 million from ADB for development of horticulture; €150 million from Spain for joint projects in agriculture, industry and infrastructure; €15 million and €21.5 million from EU for development of livestock sector and horticulture, respectively.

Over 2019-2023 the "Indorama" Singapore Company will be investing \$340 million for the development of a cotton and textile cluster. Based on the Resolution of the Cabinet of Ministers "On measures aimed at creating modern cotton and textile production by the "Indorama" Company in the Republic of Uzbekistan" (No. 632 of 08.08.2018), it is planned to spend \$225 million for growing of raw cotton and crops in rotation and \$115 million for cotton processing and wool production.

In 2018, the following funds were allocated in the water sector: \$145 million by ADB for improvement of water supply; €30 million by EU for "Sustainable management of water resources in the Fergana Valley"; €400 million by EIB for water resources management; \$100,000 by Coca-Cola Fund for the project on improvement of water supply in Takhtakupyr district of the Republic of Karakalpakstan under the Joint UN Program on the Aral Sea.

The energy sector received in 2018: \$200 million by the WB for the improvement of energy efficiency; \$475 million by IDB for energy development; \$50 million by IBRD for energy efficiency; \$85.5 million by Turonbank for construction and modernization of HPPs, including construction of "HPP Kamolot" along the Chirchik-Bozsui tract, modernization of the Kadarya Cascade of HPPs (HPP-3) with the delivery of equipment from PRC and modernization of the Nizhne-Bozuysk Cascade of HPPs (HPP-14), Tashkent Cascade of HPPs (SFC-2) on ready-

to-operate basis; \$1.3 billion by the Canadian Company SKYPOWER GLOBAL and \$1.2 billion by the Headwall LLC American Company for construction of photoelectrical solar energy generation facilities.

Energy

Based on the results of 2018, generation of electrical energy in Uzbekistan amounted to 62.8 billion kWh, including 56.3 billion kWh (89.6% of total volume) by thermal stations and 6.5 billion kWh by hydropower plants. The customers received 50.7 billion kWh, including population—13.3 billion kWh. Electrical power export was 2.6 billion kWh.

In 2018, the JSC "UzbekEnergo" implemented six large investment projects on construction of new and modernization and reconstruction of existing energy stations (in line with PP-3507 of 03.02.2018). Particularly, the following work was completed: construction of a new Turakurgan thermal power station in Namangan provided with two steam and gas units (SGU), capacity of 450 MW, and SGU at Navoiy thermal power station, capacity of 450 MW (JICA, Fund for Reconstruction and Development of the Republic of Uzbekistan, and own funds of the JSC "UzbekEnergo"); installation of two SGUs at Takhiatash thermal power station, capacity of 230-280 MW; construction of transmission lines of 220 kV to the distance of 363.8 km (ADB); stage-by-stage modernization and reconstruction of 22 sub-stations (WB); stage-bystage modernization of energy blocks at Syr Darya thermal power station (together with Russian company "Powerful machinery"); implementation of automated electrical power control and monitoring system (AEPCRS). Totally, the amount of 6,774.7 billion sum was spent on investment projects.

Additionally, JSC "UzbekHydroEnergo" completed the following in 2018:

Modernization of the Charvak HPP to ensure its reliable and efficient operation within the energy system. Thanks to replacement of obsolete and worn-out elements, the service period of the HPP's equipment was extended for another 40 years, and the capacity was increased by 45 MW (from 620.5 to 666 MW).

Development of feasibility study for the construction of the Pskem HPP on the Pskem river. New HPP with the capacity of 400 MW and the average annual generation of 900 million kWh would become the second in Uzbekistan after the Charvak HPP, and one of the largest in the region.

An agreement on mutually beneficial cooperation in the area of hydropower development in Uzbekistan was signed between the Russian Energy Holding "RusGidro" and the JSC "UzbekHydroEnergo". The main point of the Agreement is the establishment of a joint working group, which in the first quarter of 2019 would start its work on feasibility study on the projects of the Mullalak HPP of 240 MW and the Upper Pskem HPP of 200 MW on the Pskem river.

Loan Agreements between the Uzbek SCB Turonbank and the Export and Import Bank of China for the amount of \$85.8 million was signed. The funds will be used for financing of projects on construction and modernization of 4 HPPs in Tashkent and the Andizhan and Tashkent provinces to increase their capacity to 62.1 MW and average annual generation to 406.1 million kWh.

Hydropower development. In the energy system of Uzbekistan the ratio of generation between thermal power stations and hydropower plants was 87 and 13%, respectively (given the optimal proportion of 65 and 35% in 2017). The hydropower resources of Uzbekistan allow generating up to 27.4 billion kWh a year of electrical power, of which 6.5 billion kWh or 23.7% only was developed in 2018. Out of operating 37 HPPs over the years of independence seven new HPPs were constructed and others were built between 30-80 years ago. Equipment is worn-out and obsolete. Based on the long-term forecast approved by the JS "UzbekHydroEnergo" in 2018, it is expected to continue developing the sector and achieving 13.16 billion kWh of total generation by 2029. This will be 22% of actual generation by the energy system on the whole in Uzbekistan. By the beginning of 2022, JS "UzbekHydroEnergo" plans to put into operation two HPPs with the capacity of more than 30 MW, 12 new small plants and 10 new mini HPPs; modernize nine existing HPPs and start the construction of two big HPPs - Nizhnechatkal and Mullalak. This will allow increasing annual generation of electrical power by 1.6 billion kWh, given that in the structure of the JS "UzbekHydroEnergo" the total quantity of operating HPPs will be 61, with the total generation of 9.533 kWh.

A decision on development of nuclear energy in Uzbekistan was adopted (No. UP- 5484 of 19.07.2018). The Agency for nuclear development was established at the Cabinet of Ministers of the Republic of Uzbekistan (Uzatom) together with the Scientific-Technological and Expert Council under it. The Agreement between the Government of Uzbekistan and the Govern-

ment of Russia "On cooperation in the construction of nuclear electrical power station on the territory of the Republic of Uzbekistan" was signed (7 September 2018). The parties agreed to maintain cooperation in design and construction of nuclear power plant in the territory of Uzbekistan, consisting of two energy blocks on the base of water cooled energy reactor, with up to 1.2 GW of established capacity of each energy block.

A pilot project on the construction of photoelectrical stations with the capacity of 100 MW in Navoyi province is planned (Resolution of the Cabinet of Ministers "On measures for development of renewable sources and attraction of private investments for creation of photoelectrical stations" No. 633 of 08.08.2018).

Environment, Ecology and Climate Change

The issues of environmental security, efficient use of water and other natural resources are in the focus of the state.

During the Summit of the Heads of the IFAS Founder-State (24.09.2018, Turkmenbashi, Turkmenistan), the President of Uzbekistan Sh.M. Mirziyoev has voiced over five initiatives: to declare Prearalie (the Aral Sea coastal zone) an area of environmental innovations and technologies; to establish a Regional Center for growing seedlings of desert and fodder plants; to arrange in Prearalie the designated and protected natural zones of transboundary character; to enhance conside-rably the level of regional cooperation in water saving as well as management and rational use of transboundary water resources and adopt the Regional Program for rational use of water resources in CA; to organize implementation of joint interdisciplinary research, including on the base of the Scientific Information Center of the Interstate Commission for Water Coordination in Central Asia and the Scientific Information Center of the Interstate Commission on Sustainable Development (for more details see section "XII <u>Summit of the IFAS Heads of Founder-State</u>").

In order to ensure effective public administration in the sphere of ecology and environmental protection, the President's Resolution "On additional measures for the improvement of public administration system in the sphere of ecology and environmental protection" was adopted (No. PP-3956 of 03.10.2018). The Resolution approves the establishment of the Inspection for control in the area of ecology and

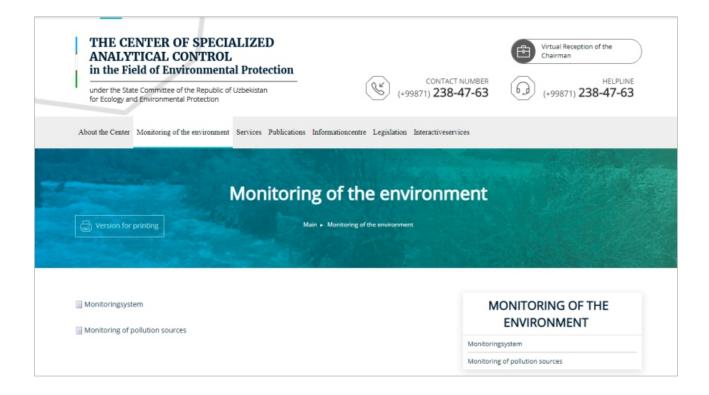
environmental protection at the Goscomecologiya; the Republican association of specialized sanitary purification enterprises; the Center for environmental information, introduction of information and communication technologies and multimedia, in the form of state unitary enterprise. The main tasks and areas of activity of the established organizations were defined.

In order to develop scientific and research basis for ecology and environmental protection, the Resolution of the Cabinet of Ministers "On measures for further development of scientific and research basis for ecology and environmental protection" (No. 958 of 26.11.2018) was adopted. The Resolution approves the establishment of a scientific cluster at the Cabinet of Ministers. The Research Institute of Ecology and Environmental Protection at the State Committee on Geology was transformed into the Research Institute of Environment and

Environmental Technologies at the State Committee on Ecology and Environmental Protection.

In 2018, the Multi-Partner Human Security Trust Fund for the Aral Sea Region under the UN umbrella was established. The Fund was established in an attempt to bring multiple risks that threaten vulnerable groups to the forefront and maintain the new dimension of the dialogue on a need to make comprehensive and human-oriented decisions based on the needs and abilities of people and consider the existing risks and threats. For more details see the box in section "UNDP/Uzbekistan".

The new environmental site of the Specialized Analytical Control Center (SACC) was opened on https://www.csak.uz/en/. The Center provides environmental control and is a branch of the State Committee on Geology.



The Information and Resource Center at the Tashkent provincial branch of the Ecological Movement was opened with the support of the OSCE Project Coordinator Office (17 July). The purpose of the Center is to enhance environmental culture and improve knowledge of population on environmental protection and health.

The renovated Environmental Museum was opened in Muinak (Prearalie). The exhibition reflects the culture of Karakalpakstan and the

features of Prearalie. The first floor shows flora, fauna, national clothes and popular craftwork items, the everyday objects, and even the examples of the production of fish canning plant, which was very famous in the Soviet Union. The second floor has an art gallery of famous artists who used to live near the Aral Sea and reflected the stages of its existence in their paintings.

The issues of environmental security, rational use of water and other natural resources are still

in the focus of the state in 2019. (Message of the President to Oliy Mazhlis, 28.12.2018). As it is known, the Aral Sea catastrophe has led to the Aralkum desert covering an area of more than 5.5 million ha. Every year, 100 million tonnes of sand and salt raise in the air from the dried bed of the sea. This fact once more proves the global character of the Aral Sea problem. Establishment of the Multi-Partner Human Security Trust Fund for the Aral Sea Region under the UN has become a big achievement of Uzbek diplomacy. Particular attention is paid to afforestation of the dried bed of the Sea. Since independence, afforestation has covered almost 1,220,000 ha, of which more than 400,000 ha are in Prearalie. In line with a Special Program, it is to afforest additionally 500,000 ha in 2019 in this region (see more details in section "Afforestation on the former bed of the Aral Sea in Uzbekistan").

During 2018 the following projects were ongoing:

"Reducing pressures on natural resources from competing land use in non-irrigated arid mountain, semi-desert and desert landscapes of Uzbekistan" (GEF, UNDP) aimed at reducing the intensity of use of natural resources through adoption of integrated approaches to management of pasture and forest management.

"Developing climate resilience of farming communities in the drought prone parts of Uzbekistan" (Adaptation Fund of the UN Framework Convention on Climate Change, UNDP) aimed at providing support to central, regional and local administration bodies and vulnerable communities to increase their resilience to climate change.

"Sustainable natural resource use of and forest management in key mountainous areas important for globally significant biodiversity" (GEF, UNDP) aimed at enhancing preservation and sustainable use of natural resources and biodiversity in highland ecosystems of Uzbekistan.

"Integrated natural resource management in drought-prone and salt-affected agricultural production landscapes in Central Asia and Turkey" (FAO and GEF) aimed at reducing the risks and vulnerability and simultaneously improving capacities of rural communities to manage droughts and salinization and adapt to them.

"Ecosystem-based land use and conservation of ecosystems at lower reaches of Amu Darya" (GIZ). The project provides for the improvement of productivity of degraded land used in irrigated agriculture and conservation of biodiversity through protection of forests and afforestation in the lower reaches of Amu Darya.

During 2018 the following events were held:

Applied science workshop "Protection and rational use of land resources in the context of environmental change" (23 April, Tashkent) organized by the deputy group of the Ecological Movement, the Committee of the Legislative House of Oliy Mazhlis on ecology and environmental protection, the Agricultural and Water Committee together with the State Committee for land resources, geodesy, cartography and national cadastre.

Roundtable "Studying the status of ratification by Uzbekistan of the international agreement of the 21st Paris Conference of the UN Framework Convention on Climate Change" organized together with the Environmental Movement of Uzbekistan and the Committee for International Affairs and Inter-parliamentary Relations of the Legislative House of Oliy Mazhlis (27 June, Tashkent).

International Roundtable dedicated to adoption of the UN GA Resolution "Strengthening of regional and international cooperation to ensure peace, stability and sustainable development in the Central Asia region" (12 July, Tashkent).

Conference on the environmental problems in the Aral Sea region (15 August, Tashkent).

Training workshop "Sustainable water management in rural area" organized by the Kashkadarya branch of the Ecological Movement together with IWMI (10 September, Kashkadarya province).

Workshop dedicated to the Intergovernmental science and political platform on biodiversity and ecosystem services (18 September, Tashkent).

International roundtable "Environmental challenges in the Central Asia at the present time and in the long-term: search for joint solutions", a joint initiative of the Research Initiatives Center "Ma'no" and the Ebert Fund representative office in Central Asia (21 November, Tashkent).

Foreign Policy and International Cooperation

In 2018, 18 interstate visits were made and agreements were reached on 1080 projects for a total amount of \$52 billion.

The President Shavkat Mirziyoyev made official and working visits to Tajikistan (09-10 March), USA (15-17 May), India (30 September-1 October), and France (08-09 October)

With the aim of participating in multilateral events the President of Uzbekistan visited: Kazakhstan (15 March) for the First consulting meeting of the Central Asian Heads of State; PRC (09-10 June) for the Meeting of the Council of Heads of State within the Shanghai Cooperation Organization; Turkmenistan (24 August) for the Summit of the Heads of the IFAS Founder-States; Kyrgyzstan (03 September) for the Summit of the Cooperation Council of Turkic Speaking States; Tajikistan (27-28 September) for the Meeting of the Council of CIS Heads of State.

The President of the Islamic Republic of Afghanistan Mohammad Ashraf Ghani (26 March); the President of Turkmenistan G. Berdymuhamedov (23-24 April); the President of Turkey R. Erdogan (29 April-1 May), the President of Tajikistan E. Rakhmon (17-18 August), the President of the Arab Republic Egypt Abdel-Fattakh el-Sisi (4 September), the President of Belarus A.Lukashenko (12-14 September), and the President of Russia Vladimir Putin (19-20 October) made official and working visits to Uzbekistan in 2018.

In 2018, the President of Uzbekistan received: WB Delegation (18 January); Deputy Prime-Minister, Minister of Strategy and Finance of the Korean Republic (13 February); Deputy Chairman of the Cabinet of Ministers of Turkmenistan (01 March); Minister of Finance of Russia (06 March), Deputy of the U.S. State Secretary (26 March), Minister of Foreign Affairs of the Korean Republic (18 April), First Deputy Prime-Minister of the RK (04 May), the President of EBRD (01 August) and the President of IDB (20 September).

In 2018, the following international conferences were held in Uzbekistan:

International High-level Conference on Afghanistan "Peace process, security cooperation and regional connectivity" (26-27 March, Tashkent);

International Conference "Uzbekistan and China: prospects for joint implementation of the One Belt, One Road Initiative" (14 May, Tashkent);

Central Asian International Environmental Forum "Strengthening cooperation on environment and sustainable development in Central Asia" (5-8 June, Tashakent);

International Conference on the environmental problems of the Aral Sea "Joint actions to mitigate the consequences of the Aral Sea catastrophe: new approaches, innovative solutions and investments" (7-8 June, Tashkent);

International Forum "Innovative approaches to promoting sustainable governance and social stability in the Aral Sea Basin" (16-18 October, Samarkand);

First meeting of the Central Asian Expert Forum (29 October, Tashkent)

International Research to Practice Conference "Increasing efficiency, reliability and safety of hydraulic structures" (22-23 May, Tashkent).

Sources:

Official sites:

The President of Uzbekistan (https://president.uz/); The Government of Uzbekistan portal (www.gov.uz/); The Ministry for Investments and Foreign Trade (www.mift.uz);

The Ministry for Foreign Affairs (www.mfa.uz);

The Ministry of Finance (<u>www.mf.uz</u>);

The Ministry of Economy and Industry

(www.mineconomy.uz);

The Ministry of Justice (<u>www.minjust.uz</u>);

The Ministry of Innovation Development

(www.mininnovation.uz);

The Ministry of Agriculture (www.agro.uz);

The Ministry of Water Management

(www.water.gov.uz/ru)

The Ministry of Energy (www.minenergy.uz);

The State Committee for Geology and Mineral

Resources (<u>www.uzgeolcom.uz</u>);

The State Committee for Land Resources, Geodesy,

Cartography and State Cadastre (www.yak.uz);

The State Committee for Ecology and

Environmental Protection (<u>www.uznature.uz</u>);

The State Committee for Forestry (<u>www.urmon.uz</u>)

Information agencies and sites:

https://www.uzdaily.uz/;

http://ca-news.org/;

http://ru.sputniknews-uz.com/;

https://vesti.uz/;

http://podrobno.uz/;

https://www.gazeta.uz;

The Ecological Movement of Uzbekistan –

http://eco.uz;

National information agencies of Uzbekistan (UzA) – http://www.uza.uz/





United Nations and its Specialized Agencies

6.1. General Assembly



73rd Session United Nations General Assembly

The General Assembly (GA) occupies a central position as the chief deliberative organ of the United Nations. It is comprised of all Members of the United Nations, each having one vote. It is authorized to discuss full spectrum of issues covered by the Charter. The UN GA meets September each year.

On 18 September 2018, the 73rd Session of GA was opened, with agenda containing 178 items. The Presidents of the Kyrgyz Republic and Turkmenistan, the Minister of Foreign Affairs of the Republic of Kazakhstan, and the Permanent Representative of the Republic of Tajikistan and Republic of Uzbekistan to the UN spoke at the general debate "Making the United Nations Relevant to All People: Global Leadership and Shared Responsibilities for Peaceful, Equitable and Sustainable Societies". Among other things, they focused on water, climate change, and energy-related issues.

Statements by representatives of Central Asian countries at the general debate of the 73rd session of the UNGA

Address by the Minister of Foreign Affairs of the Republic of Kazakhstan



Today in Central Asia, a "new reality" has been formed

Speaking from the floor of the UNGA, the Minister of Foreign Affairs of the Republic of Kazakhstan H.E. Mr. Kairat Abdrakhmanov underlined that the world was facing the crises, which touched every aspect of life. "Millions of people live under a shadow of dreadful wars, such as in Syria, Yemen and many other corners of the Globe", he reminded. Search for a comprehensive solution to the Syrian conflict was the reason for Kazakhstan's initiative to hold talks in

the Astana format. Kazakhstan believes that war can never be a lasting solution to any problem, which should be resolved based on mutual respect and trust. The Minister drew attention to the resumption of the arms race, which worsens the climate of international relations. He noted that today there is growing ideological gap between East and West. The Minister called for the use of the UN for multilateral negotiations.

He highlighted that Kazakhstan has been experiencing the explosive economic growth. The government carefully preserved peace and harmony in multi-ethnic and multi-religious society.

H.E. Mr. Kairat Abdrakhmanov reminded that the country has proven itself to be a moral leader in nuclear disarmament and non-proliferation, having renounced the world's fourth largest nuclear arsenal and the world's largest nuclear test site in Semipalatinsk. The Minister called upon all other countries to follow this example as nuclear weapons do not ensure either real power or true protection. Kazakhstan signed the Treaty on the Prohibition of Nuclear Weapons on 2 March 2018, as well as sponsored General Assembly resolution that established the International Day against Nuclear Tests.

Regional cooperation in Central Asia

In his address, H.E. Mr. Kairat Abdrakhmanov underlined the importance of cooperation among the Central Asian states. He, particularly, noted:

"In the regional context we are committed to further extending our partnership among Central Asian countries and to enhancing our common capability to withstand threats and challenges. We consider the political, economic and cultural potential of the region as a common resource, the most rational and effective use of which is achievable only in a collective format.

Our shared goal is creating in our region of Central Asia and beyond a model for a zone of peace, security, trust, development and cooperation. Several features of such a zone are already in place, as exemplified by the Council of the Turkic Speaking States, the International Aral Sea Fund and its last Summit, that demonstrated strong political collaboration amongst regional leaders, the Nuclear Weapons Free Zone in Central Asia and other mechanisms.

Being the first country from the region represented in the UN Security Council, we try to deeper focus to the situation in Afghanistan with its full implications and threats in the broader regional context [...].

New globalization trends imply cross-border threats and challenges, requiring a new paradigm of addressing them. These transnational challenges are specific but common to particular regions, especially conflict-prone ones, and necessitate transit from "country-specific" to "regional" strategy to tackle them. Regional strategy becomes effective with "whole-of-system" coordination of UN structures' activities region-wide. As a pilot case we offer the establishment of a UN regional Hub for SDGs in Almaty.

As an example of regional cooperation, I would also like to outline the results of the Caspian Summit held a month ago in the city of Aktau in Western Kazakhstan. We all are extremely satisfied and proud that the long-awaited legal status of the Caspian Sea has been agreed and determined by the five littoral countries."

In conclusion, Mr. Abdrakhmanov reiterated that it was only through collective will and solidarity one can turn this world in crisis into a world of hope and promise. He also called to turn good will and good words into good action.

Full text in English: https://gadebate.un.org/sites/default/files/gastate ments/73/kz_en2.pdf

Address by the President of the Kyrgyz Republic

The President of the Kyrgyz Republic Sooronbai Zheenbekov, speaking at the general debate of the 73rd session of the General Assembly, underlined terrorism fighting, climate change, water use, environmental issues and the heritage of the radioactive industry of the Soviet era.

On Cooperation in Central Asia and Water Use Issues

Strengthening the entire spectrum of cooperation between the countries of Central Asia, we consider as the most important factor of ensuring security not only in the region, but also in the world. It is gratifying to note that our cooperation has acquired a positive momentum and has reached a fundamentally new level. The meetings of heads of state and foreign ministers of the countries of Central Asia have become traditional.



Today, overcoming the isolation policy and developing the vector of cooperation and partnership have become very important

For the Kyrgyz Republic, the issue of water use is extremely important. The practice of the last decades of using water and energy resources in

Central Asia shows the need to develop new approaches. We are convinced that the integrated use of water and energy resources in the region should be determined by a system of measures aimed at the sustainable development of all the Central Asian states. Therefore, Kyrgyzstan has consistently advocated the development and implementation in Central Asia of mutually beneficial economic mechanisms in this area. Cooperation and comprehensive dialogue are considered by the Kyrayz side as the only and without alternative way of solving existing problems. In this context, we also see a special role and a new mission of such regional organizations as the CIS, SCO, CSTO, and the EAEU. Today, overcoming the isolation policy and developing the vector of cooperation and partnership have become very important.

On Sustainable Development and Environment

The transition to sustainable development is the restoration of natural ecosystems and the environment. Kyrgyzstan recognizes climate change as a significant threat to ecosystems and people. We committed ourselves to counteract

this global phenomenon by signing the Paris Agreement.

Climate change is having an increasing impact on our glaciers and water resources, contributing to the growth of natural disasters in the mountainous regions of the country. These are the main topics of the fourth World Mountain Forum in Kyrgyzstan, organized to discuss new ways of development for the prosperous future of mountain regions.

The main issue of regional nature in the sphere of environment remains the problem of the legacy of the radioactive industry of the Soviet era - uranium tailings [...]. With a view to enter a new stage of actions to reclaim uranium tailings, Kyrgyzstan is taking the initiative to update the UN General Assembly Resolution of 2013 on the Role of the International Community in Preventing Radiation Threat in Central Asia [...].

As the great son of the Kyrgyz people, famous writer, philosopher, humanist Chingiz Aitmatov said "There is no greater wealth for a man than to live together and peacefully". Only unity and harmony will keep the world together!

Full text (in Russian): https://gadebate.un.org/sites/default/files/gastatements/73/kg_ru.pdf

Address by the Permanent Representative of the Republic of Tajikistan to the UN



Effective regional cooperation should also facilitate achieving sustainable development

Speaking from the floor of the UNGA, H.E. Mr. Mahmadamin Mahmadaminov, Permanent Representative of the Republic of Tajikistan to the UN, highlighted that the unprecedented level of instability and uncertainty was on the rise in many parts of the world. Global chal-

lenges such as climate change, terrorism and extremism, large-scale conflicts, inequality, poverty, food and water security, lack of education and economic opportunities, unemployment, to name a few, further affect the status quo. Today's global challenges exert pressure on the very foundations of the world order and principles of international relations. He underlined that they undermined the efforts of the international community at achieving the 2030 Agenda and its sustainable development goals.

Peace on Earth and Afghanistan

H.E. Mr. M.Mahmadaminov has underlined that peace is a prerequisite for sustainable development, and Tajikistan supports the international strategy for a comprehensive settlement and post-conflict rehabilitation in Afghanistan. He also called to strengthen our assistance to the Government of Afghanistan, especially during Afghanistan s Transformation Decade (2015-2024). Urgent socio-economic recovery is a must for development and prosperity of

Afghanistan. Tajikistan is willing to take part in the rehabilitation of the social and economic infrastructure of Afghanistan through connecting the transport arteries of our two countries, creating an energy bridge CASA-1000, providing the Afghan population with essential commodities and training specialists.

Sustainable Development Goals

With regard to the Sustainable Development Goals by 2030, Mr. M. Mahmadaminov expressed concern about the development of the situation with the achievement of SDGs by 2030, particularly at the stage, when the countries just started incorporating/aligning the 2030 Agenda with their national development strategies. It is essential to revitalize international trade and investments – the main engines of economic growth and development. He also noted the importance of regional cooperation.

International Water Cooperation

He concluded that Dushanbe, Tajikistan hosted the High-Level International Conference in June, which launched the International Decade for Action "Water for Sustainable Development", 2018-2028. The Conference brought together around 1,500 people from 111 countries of the world. It was organized jointly by the Government of Tajikistan and the UN with the support of partners. The Conference also provided a timely and necessary platform for elaborating recommendations in the run-up to the HLPF where the SDG 6 had been reviewed. He noted that Tajikistan would continue to promote water issues in the global agenda.

Full text: https://gadebate.un.org/en/73/tajikistan

Address by the President of Turkmenistan

The President of Turkmenistan Gurbanguly Berdimuhamedov has put forward an initiative to declare 2019 as the year of Peace and Trust. He proposed specific measures aimed at reducing tensions, peaceful political and diplomatic resolution of disputes and contradictions and adoption of appropriate responsible and substantiated decisions.

Security in Central Asia and Afghanistan

"Ensuring long-term and comprehensive security represents a key issue for the Central Asian states [...]. In this regard we believe that it is crucially important to involve Afghanistan in the implementation of major energy, transport and communications projects as a full-fledged partner. We regard this issue as a strategic guideline for Afghanistan, its role in regional and global processes and the guarantee of the prosperity and well-being of the Afghan people [...].

Sustainable Development Goals

Turkmenistan has taken an active part in the elaboration of the Sustainable Development Agenda for the period up to the year 2030 and has tabled a number of specific proposals [...].

Implementation of the SDGs in Turkmenistan has an especially prominent social orientation.



Equality of rights, mutual respect and responsibility should become the main criteria that determine relations among Central Asian states

By this we mean such important issues as ensuring food security and improvement of people's nutrition, all-round promotion of a healthy way of life, ensuring full gender equality by guaranteeing the rights and opportunities for all women and girls, and creating the conditions for a comprehensive, equitable and high-quality education.

Parallel to this we devote great attention to achieving the goal of ensuring the availability and rational use of water resources and sanitation for all.

Water Issues and Aral Sea Problem

Turkmenistan firmly adheres to the principle stipulating that water is the common heritage of all the nations of the planet and that equal and equitable access to clean drinking water is the fundamental right of human beings. Development of states, their economy and social sphere as well as the level of well-being and quality of life of the people directly depends on access to water resources and their effective use. Therefore equality of rights, mutual respect and responsibility should become the main criteria that determine relations among Central Asian states.

By steadfastly adhering to those positions Turkmenistan has always declared that water and energy issues existing in our region should be resolved: first, on the basis of generally accepted rules of international law; second, on the basis of the consideration of the interests of each country; and third, on the basis of active participation of international organizations and primarily of the United Nations [...].

The issue of saving the Aral Sea stands prominently among the major topics of cooperation between the countries of the region and the international community. It is apparent that preservation of the Aral Sea can no longer be considered as an internal regional problem. Its successful solution requires assistance from the international community, an innovative purpose oriented and comprehensive international approach and systematic participation of the United Nations in this endeavor.

In this connection we have embarked on the implementation of Turkmenistan's initiative regarding the elaboration of a Special UN Program for the Aral Sea basin and earmarking the Aral problem as a separate sphere of Organization's work [...].

He also called on the international community to join measures to preserve the Aral Sea and support Turkmenistan's initiative in this area. He cited the recent signing of the Caspian Sea agreement as a positive example of international cooperation".

Full text: https://www.mfa.gov.tm/en/articles/321

Address by the Permanent Representative of the Republic of Uzbekistan to the UN



Thanks to joint efforts of the countries of the region, within a short period of time in Central Asia we've created a fundamentally new political atmosphere

H.E. Mr. Bakhtiyor Ibragimov, the Permanent Representative of Uzbekistan to the United Nations, speaking at the general debate of the 73rd session of the UNGA, shared the first results of the large-scale transformations taking place in the country and the country's priorities in foreign policy.

Transformations in Uzbekistan

Today, the Republic of Uzbekistan is on an important stage of radical and dynamic transformations. Mr. Ibragimov spoke on significant steps on streamlining the national system of protection of human rights and freedom, strengthening independence of the judicial system, as well as large scale measures on liberalization of economy, creating conditions for free entrepreneurship, ensuring inviolability of private property, improving investment climate.

Reforming UN and Initiatives of Uzbekistan

Uzbekistan proposes "to strengthen the central role of the United Nations in international relations, especially in supporting of the three pillars of the Organization, i.e. efforts on ensuring peace, security and sustainable development of countries and regions as well as the protection of human rights. Uzbekistan supports steps taken by the leadership of the United Nations on streamlining the governing system of

the Organization as well as it calls for gradual reforming its organs, including the Security Council taking into account today's realities and challenges" [...].

Uzbekistan "is ready to actively participate in UN efforts on promoting comprehensive peace, stability and development on the basis of respecting for human rights and freedom, democratization and the rule of law. In this regard, Uzbekistan has for the first time nominated its candidacy to the United Nations Human Rights Council for the period of 2021-2023". He underlined that the President of Uzbekistan initiated the development and adoption of a UN Convention "On the rights of youth" and a General Assembly resolution entitled "Enlightenment and Religious Tolerance".

Central Asia is a Main Foreign Policy Priority

"Central Asia remains as a main foreign policy priority of Uzbekistan. Today the situation in this region differs from the one we had not long ago. Thanks to joint efforts of the countries of the region, within a short period of time in Central Asia we've created a fundamentally new political atmosphere, raised the level of political trust, strengthened traditionally friendly and good neighborly relations among ourselves.

The important outcome of all of this work is the significant progress in resolving such acute issues as demarcation of borders, management of the water resources, and joint use of transport communications. One should note that these very issues have not only remained unresolved for an extended period of time but were also sources of regional tension [...]. Most importantly – we are now more convinced that we are united not only by our one past, but by our common future [...].

Sustainable Development, Ecological Equilibrium and Aral Sea Problem

The sustainable development of Central Asia stipulates maintaining ecological equilibrium in the region which directly depends on the mitigation of the consequences of the drying up of the Aral Sea. For the past several years Uzbekistan has implemented a number of large scale projects in the Aral Sea zone. Uzbekistan has initiated the establishment of the Multi-Partner Human Security Trust Fund for the Aral Sea Region, which was supported by the United Nations [...]. The establishment under the auspices of the United Nations of this Multi-Partner Human Security Trust Fund for the Aral Sea Region is an attempt to highlight major risks that pose threats to the most vulnerable population, and also opens a new level of dialogue aimed at comprehensive and human based solutions which focus on the real needs of people, taking into account existing risks and challenges [...].

Peaceful Process in Afghanistan

When we speak about Central Asia, we can't help but to mention Afghanistan – the country which we consider a historical part of the single cultural-civilizational space of our region. Stable Afghanistan is a prerequisite for the sustainable development of Central Asia as a whole. Recently Uzbekistan has notably expanded its bilateral relations with Afghanistan, actively joined multilateral efforts on resolving the Afghan problem and is making real contribution to restoring the country's economy as well as to developing close trade-economic and transport-communication ties".

Sources:

https://gadebate.un.org/sites/default/files/.../73/uz _en.pdf

UNGA Resolutions on Regional Cooperation, Water and Environment

On 12 April at the 82nd plenary meeting of the 72nd session, the UNGA adopted a draft resolution 72/273 on "Cooperation between the United Nations and the International Fund for Saving the Aral Sea". Turkmenistan, under its chairmanship of the IFAS, proposed this resolution for consideration. Particularly, UNGA noted the need for further improvement of the activities of the IFAS; also notes the importance of strengthening cooperation and coordination between the UN system and IFAS, making use of

consultations between the Secretary-General and the Chair of the Executive Committee of IFAS; and invites the specialized agencies of the UN system and international financial institutions to develop their cooperation with IFAS.

Full text of the resolution: https://undocs.org/en/A/RES/72/273

On 22 June, GA adopted a resolution entitled "Strengthening Regional and International

Cooperation to Ensure Peace, Stability and Sustainable Development in the Central Asian Region" (A/RES/72/283). Uzbekistan proposed this draft resolution for consideration. Particularly, UNGA expressed its support for the ongoing regional efforts and initiatives to strengthen stability and economic cooperation in Central Asia; encouraged the efforts of the Central Asian States to promote the peace process and social and economic development in Afghanistan; noted the importance of developing and strengthening bilateral and regional cooperation in the sphere of the rational and integrated use of water and energy resources in Central Asia; and called upon Member States to support the efforts of the Central Asian States aimed at mitigating the environmental and

socioeconomic consequences of the drying up of the Aral Sea.

Full text of the resolution: https://undocs.org/en/A/RES/72/283

On December 20, the UNGA adopted a resolution 73/226 "Midterm comprehensive review of the implementation of the International Decade for Action, "Water for Sustainable Development", 2018–2028". The draft resolution was presented by Tajikistan in co-authorship with 190 UN countries. UNGA emphasizes that water is critical for sustainable development and the eradication of poverty and hunger, and notes the need for climate adaptation strategies to address water issues.

Full text of the resolution: https://undocs.org/ru/A/RES/73/226

International Decade for Action, "Water for Sustainable Development", 2018–2028

On 21 December 2016, at its 66th plenary session, the UNGA adopted its <u>resolution 71/222</u>, which proclaimed the period from 2018 to 2028 the International Decade for Action, "Water for Sustainable Development". The Decade commenced on World Water Day 22 March 2018 and would terminate on <u>World Water Day</u>, 22 March 2028.

The International Decade for Action "Water for Sustainable Development", 2018-2028 is the Tajikistan's fourth global water-related initiative, which was first announced by the President of Tajikistan during the 7^{th} World Water Forum in the Republic of Korea on 12-17 April 2015.



The International Decade for Action "Water for Sustainable Development", 2018-2028 builds on the achievements of the previous International Decade for Action "Water for Life", 2005-2015. The report of the UN General-Secretary "International Decade for Action, "Water for Life", 2005-2015, and further efforts to achieve the sustainable development of water resources" notes that "the Decade helped maintain momentum, provided the impetus for continued actions and activities and helped water become the focus of a level of attention greater than any witnessed previously" (item 42), as well "it has also shown where the shortfalls lie and what slows down progress on water-related goals and targets. There are still a myriad of constraints on human, institutional and financial resources" (item 44). The new Decade should be a follow up of the previous Decade, while enriching it with new measures and efforts to achieve SDGs.

According to the UNGA Resolution 71/222, objectives of the 2018-2028 Decade include a greater focus on the sustainable development

and integrated management of water resources for the achievement of social, economic and environmental objectives; implementation and promotion of related programmes and projects; furtherance of cooperation and partnership at all levels in order to help to achieve internationally agreed water-related goals and targets, including SDG (item 4). It also highlights the importance of promoting efficient water usage at all levels, taking into account the water, food, energy, environment nexus (item 5).

The resolution decides (item 6) that these objectives should be pursued by:

- improving knowledge generation and dissemination, facilitating access to knowledge and the exchange of good practices, generating new information relevant to the water-related SDG;
- pursuing advocacy;
- networking and promoting partnership and action by different actors to imple-

- ment the water-related Goals and targets;
- strengthening communication actions at various levels for the implementation of the water-related Goals.

Implementation of the International Decade for Action in 2018

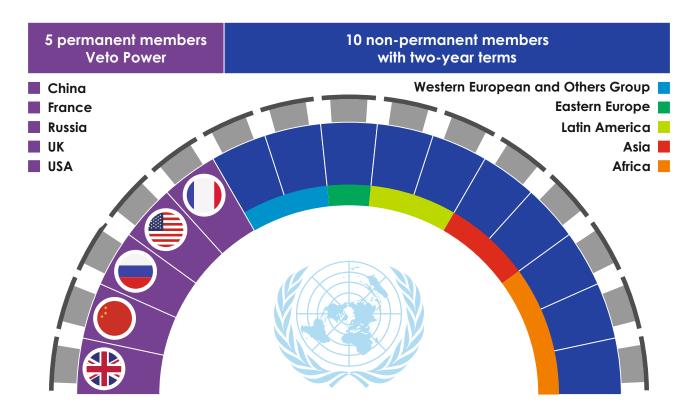
On 22 March, a <u>High-Level Event</u> was organized to launch the International Decade for Action "Water for Sustainable Development", 2018-2028 (New York, USA).

On March 23-24, an International scientific and practical conference "Water for sustainable development of Central Asia", dedicated to the launch of the International Decade for Action "Water for Sustainable Development", 2018-2028, was held in Dushanbe. The event was aimed at sharing information, knowledge and experience in rational water use in the Central Asian countries under the climate change. Based on the results of the conference, a collection of materials was published.

On June 20-21, an <u>International High-Level Conference</u> on the International Decade for Action "Water for Sustainable Development", 2018-2028 was held at the initiative of the Government of Tajikistan in cooperation with UN (Dushanbe). The Conference was aimed at raising awareness of the timely and effective implementation of SDG 6 and other water-related SDGs, as well as discussing next steps in the implementation of the Plan of Action of the International Decade of Action for 2018-2028 at the global, regional and country levels. For details, see Section "<u>Major Events in Central Asian Countries</u>".

On December 20, at its 62nd plenary meeting of the 73rd session, the UNGA adopted a draft resolution <u>73/226</u> "Midterm comprehensive review of the implementation of the International Decade for Action, "Water for Sustainable Development", 2018-2028" presented by Tajikistan in co-authorship with 190 UN countries.

6.2. Security Council



The Security Council (UNSC) has primary responsibility for the maintenance of international peace and security; all UN members are obliged to follow its decisions. It has 15 Members, including 5 permanent members with veto power (China, France, Great Britain, Russia, USA,) and 10 nonpermanent members elected by the General Assembly for two-year terms for 5 countries each year.

Outcome of Kazakhstan's Presidency of UN Security Council: Regional and Global Success of Initiatives of the Head of State



In 2018, Kazakhstan completed its work as President of the UN Security Council. The Kazakh presidency ensured smooth day-to-day work of the Security Council with the assistance of the UN Secretariat and performed the functions under its mandate. The Kazakh presidency held about 30 consultations, briefings and debates, which resulted in resolutions and press statements of the Council President.

The flagship event of Kazakhstan's presidency of the UN Security Council was a high-level thematic briefing Non-Proliferation of Weapons of Mass Destruction: Confidence-Building Measures held on January 18 and chaired by President of Kazakhstan Nursultan Nazarbayev. The meeting demonstrated that confidencebuilding measures, as well as the strengthening of preventive diplomacy tools, can serve as a starting point for making progress on many critical issues that may not be resolved in a timely manner due to the political situation in the relations of world powers. The Statement by the President of the UN Security Council (S/PRST/2018/1) adopted at the end of the meeting is devoted to a comprehensive conflict prevention strategy. In addition to early warning, preventive deployment, mediation, peacekeeping, post-conflict peacebuilding, and, accountability measures, this document included for the first time the problems of the non-proliferation of weapons of mass destruction. This is what makes the adopted document unique.

Kazakhstan, being the first Central Asian state elected to the UN Security Council, during its presidency continued actively promoting the interests of all states of our region.

The central event was the ministerial debates of the UN Security Council held on January 19 focusing on Building Regional Partnership in Afghanistan and Central Asia as a Model to Link Security and Development chaired by Minister of Foreign Affairs of Kazakhstan, Kairat Abdrakhmanov. The meeting was attended by Foreign Ministers of Kuwait, Russia, Poland, Kyrgyzstan, Tajikistan and Uzbekistan, deputy foreign ministers of Great Britain, the Netherlands, the United States, Equatorial Guinea and Afghanistan, as well as delegations of the UN Security Council member states and the European Union. UN Secretary-General António Guterres delivered a keynote address. The meeting resulted in the adoption of Presidential Statement S/PRST/2018/2. The document stresses the importance of advancing regional, interregional and international cooperation to achieve long-term peace, stability and sustainable development in Afghanistan and Central Asia and supports the joint efforts of countries of the region towards the enhancement of a zone of peace, cooperation and prosperity.

An important event of Kazakhstan's presidency was the visit of the UN Security Council delegation to Kabul on January 12-15. During the visit, meetings were held with the country's top leadership, representatives of political parties and civil society. In the course of the visit, the efforts of the Government of Afghanistan to address a wide range of interrelated problems were considered and it was determined how the Security Council could further promote efforts on the ground. The field mission to Kabul was the Security Council's first visit to Afghanistan since 2010, gave insight into the situation and an objective understanding of the real interests and priorities of the country and its civilian population.

On January 18, Kazakhstan held a special high-level event at the UN headquarters to launch the draft Code of Conduct for the Achievement of a Terrorism-Free World. The main goal of the document is to achieve a terrorism-free world by 2045 and create a broad international coalition of partner countries. The UN leadership and counterterrorism-related committees of the Security Council, heads and representatives of more than a hundred delegations of Member States supported the relevance and significance of the Code.

The Kazakh presidency held **planned activities** (briefings and consultations) on the situation in the Middle East and Cyprus, the Democratic Republic of the Congo, Colombia, Darfur (Sudan), West Africa and the Sahel, Libya, Mali, Somalia and Southern Sudan, on the efforts of the UN Regional Centre for Preventive Diplomacy for Central Asia, as well as arranged the trip of the UN Security Council members to Washington to meet with the leadership of the United States. One of the initiatives of Kazakhstan's presidency was the official ceremony to mark the start of a new term for six newlyelected UN Security Council members: Equatorial Guinea, Ivory Coast, Kuwait, the Netherlands, Peru and Poland on January 2, who solemnly placed their flags in front of the UN Security Council Chamber.

The success of the events initiated by the Kazakh delegation during its presidency and the adoption of outcome documents demonstrated negotiation skills and relevance of the peacekeeping potential of our country, constructive approaches to the biggest challenges of today's world, and was due to the credibility of Kazakhstan.

Source: The website of the Ministry of Foreign Affairs of Kazakhstan www.mfa.gov.kz/;

Report on the work of Kazakhstan as the president of the UNSC http://undocs.org/ru/\$/2018/575

Security Council Arria-formula Meeting on Water, Peace and Security

On 26 October 2018 an Arria-formula meeting was held on water, peace and security. The meeting is being co-hosted by Security Council members Bolivia, Côte d'Ivoire, and the Netherlands. Panelists in the meeting were Danilo Türk, chair of the Global High-Level Panel on Water and Peace; UN Assistant Secretary-General for Political Affairs Miroslav Jenča; and Manish Bapna, the Executive Vice President and Managing Director of the World Resources Institute on behalf of the Water, Peace and Security Initiative.

Water is seldom the only driver of conflict, but is often among the important contributing factors. This calls for strengthened global monitoring of developments relating to water quantity and quality and strengthened water diplomacy, as it represents a major contribution to maintaining international peace and security. A key objective of the meeting was to explore ways in which risk assessments and management strategies can be developed, in

accordance with these Council outcomes, so that the Council can be provided with the information it needs to make timely and well-informed decisions that address underlying factors sparking conflict.

Several Council members, including France, the Netherlands, Peru, Sweden, the UK, and others have shown interest in the security risks of water insecurity. The Council's focus on water security issues is likely to continue in the coming years.

Sources:

http://webtv.un.org/meetings-

events/treatybodies/watch/arria-formula-meetingon-waterpeace-

andsecurity/5854096417001/?term=http://webtv.un.org/meetings-events/treaty-bodies/watch/childrenonthe-move-preventing-child-trafficking-

byimplementing-the-un-global-plan-

ofaction/5588262537001/;

www.whatsinblue.org/2018/10/water-peaceandsecurity-arria-formula-meeting.php

Security Council and Climate-related Security Risks

On 11 July 2018 the Security Council held a debate on climate-related security risks (SC/13417). The Minister of Foreign Affairs of Sweden, Margot Wallström, chaired the debate. Among other ideas, delegates proposed the appointment of a new Special Representative of the Secretary-General on Climate and Security, as well as the establishment of an "institutional home" or "hub" for the topic within the UN system. While speakers agreed that climate change and its impacts –

including desertification, droughts, floods and food insecurity – all posed grave threats, they nevertheless diverged over the extent of the Council's responsibility to address those phenomena, with some warning against expanding the organ's mandate or encroaching on the jurisdiction of other bodies.

Many delegates shared the view that climate change is a real threat and the impact of climate change – a "multiplier" that puts

additional stress on existing political, social and economic pressures. Deputy Minister for Foreign Affairs of Kazakhstan, said climate change is becoming a central theme throughout the world community. It poses a risk as a "threat multiplier". Calling for "climate diplomacy" to become a part of the UN overall conflict prevention efforts, he said it should also be treated as an underpinning concept in sustaining peace – not an end process, but one which ran parallel to prevention, resolution, recovery and rehabilitation. He also called for better climate-related security risk assessments and management strategies, stronger international cooperation, more joint projects to build the capacity of developing countries and investments in new diversified economies. Kazakhstan, for its part, has taken voluntary action to cut its use of fossil fuels by 2030 and replace it with renewable energy by 2050.

The representative of China said the international community should work together to address climate change by "actively rising up to existing challenges". That means providing assistance to developing countries, including through technology transfer. Calling on the global community to build a new concept of common, comprehensive security and sustainable development, he said China has long participated in global action on climate change, including in the context of South-South cooperation, and remains committed to assisting other countries going forward.

The Russian Federation's delegate, underscoring the threat posed by climate change, nevertheless expressed concern that today's meeting marked yet another attempt to link the issue of environmental conservation to interna-

tional peace and security. "We are creating an illusion that the Council will tackle climate issues and that there will be some kind of turning point," he added. Climate change is not a universal challenge to be addressed as a matter of international peace and security, and should instead be addressed within national borders and in the context of the appropriate UN agencies and departments, he said.

Also speaking were Government Ministers and other senior officials and representatives from Iraq, Peru, Côte d'Ivoire Nauru, Sweden, Netherlands, United Kingdom, United States, France, China, Bolivia, Ethiopia, Equatorial Guinea, Poland, Kuwait, Maldives, Trinidad and Tobago and Sudan.

In 2018, the Council has recognized the need for risk assessment and management strategies to address climate-related risk factors such as water security, drought, and food insecurity in the context West Africa and the Sahel (<u>S/PRST/2018/3</u> of 30 January 2018) and Somalia (<u>S/RES/2408</u> of 27 March 2018). In the future, while differences of view are likely to persist, it appears that the connection between climate and security will continue to be a focus of attention in the Council. Several of the newly elected members that will serve on the Council in 2019-2020 advocate its engagement on this issue; one of them (Belgium) has called for the appointment of a Special Envoy on Climate Change, while another (Germany) spearheaded the negotiations on the 2011 presidential statement on the issue.

Sources:

www.un.org/press/en/2018/sc13417.doc.htm; www.whatsinblue.org/2018/07/climate-relatedsecurity-risks-debate.php

6.3. Secretariat

The Secretariat is one of the main organs of UN. At the head of the United Nations Secretariat is the Secretary-General, appointed by GA upon recommendation of UNSC for a 5-year term. Since January 1, 2017, António Guterres is the Secretary-General (Portugal).

Each year, the Secretary-General reports on the work of the Organization, including priority areas of the UN's activity and future plans. 2018 Report highlights the work in the following areas: promotion of sustained economic growth and sustainable development; maintenance of international peace and security; development of Africa; promotion and protection of human rights; effective coordination of humanitarian assistance efforts; promotion of justice and

international law; disarmament; drug control, crime prevention and combating terrorism.

The Report highlights key elements of the Secretary-General's major reform initiatives announced in 2018-2018 including, among others: established a finance strategy to ensure objectives of the 2030 Agenda, including by accelerating implementation of the Addis Ababa Action Agenda; mobilized political support among Member States, the UN system and other stakeholders in preparation for a climate summit in 2019; established the Joint Steering Committee to Advance Humanitarian and Development Collaboration.

Source: https://www.un.org/annualreport/

6.4. United Nations Development Program

The United Nations Development Program (UNDP) is the UN's global development network that promotes positive change and gives countries access to the knowledge, experience and resources that help improve people's lives.

It operates in 177 countries and territories.



UNDP Activity in the Central Asian States in 2018

Kazakhstan

On 4-5 May, the UNDP and EU delegation <u>visited</u> the early flood warning system and agroindustrial complex in Aktobe. The event and meetings were organized by the Akimat of Aktobe region. The goal of the event was to demonstrate ways of practical application of modern technologies in the hydraulic facilities in Aktobe region for early flood warning, as well as to familiarize oneself with the local agroindustrial complex.

On 24 August, an opening ceremony of the <u>pilot project</u> "Efficient management of water

infrastructure: reconstruction of the drainage system, use of water saving technologies and improvement of drinking water quality in Almaty region" was held within the framework of the joint EU/UNDP/UNECE project "Supporting Kazakhstan's Transition to a Green Economy Model". The project is aimed to demonstrate the practical use of "green" technologies in the area of effective management of water resources and infrastructure on the example of Akshi village of Enbekshikazakh district.

Source: www.kz.undp.org

Tajikistan

On 20 June, UNDP and UNESCO hold an Action Panel on Capacity Building in Knowledge Improvement and Education within the High-Level International Conference on International Decade for Action "Water for Sustainable Development", 2018-2028. The panelists strongly advocate for creation and development of programs targeting decision makers and water professionals to raise awareness about the importance of investing in capacity building and strong international cooperation on the highest political level.

On 22 June, international experts on climate change conducted a Validation Workshop on integrated landscape approach to increasing climate resilience of rural communities in Tajikistan. Government institutions, international agencies and civil society organizations took part at the workshop. Participants were introduced to the comprehensive insights

about the Ecosystem-based Adaptation (EbA) in Tajikistan, methods of reducing the exposure of vulnerable communities to climate hazards, and increasing the resilience of communities and ecosystems to the impacts of climate hazards.

On 6 December, UNDP has conducted the <u>first national workshop</u> on strengthening opportunities for women in energy sector, one that has been inherently perceived as masculine. Representatives of governmental institutions, including the Ministry of Energy and Water Resources and the Committee of Women and Family Affairs, private sector, donors, financial institutions, and international organizations gathered to discuss ways of increasing women's participation in the industry.

Source: http://www.tj.undp.org/

Turkmenistan

On 17 April, UNDP, GEF and the Ministry of Agriculture and Water Management of Turkmenistan launched a <u>water pipeline</u> Kaahka-Khivabad of roughly 15 km long. The pipeline will help reduce water infiltration and evaporation of the transboundary river Layinsuv at the territory of Kaahka district.

The project helps to preserve water resources to provide it to the local population of Kaahka town. In turn, it will decrease the volume of CO_2 emissions by 240 tonnes and ensure energy efficiency by 486 MW per year by reducing the number of electric pumps used to deliver the water from several dozen water wells previously constructed for the residents of Kaahka due to limited availability of water resources.

UNDP jointly with the Ministry of Education of Turkmenistan held the first pilot seminar for 35 teachers and trainers introducing the set of training materials for school teachers and students "Climate Box". The interactive learning toolkit on climate change was developed by an interdisciplinary team of Russian experts in 2014-2015 (28-29 June, Ashgabat).

UNDP and GEF together with the State Committee for Nature Protection of Turkmenis-

tan <u>conducted training</u> on planning of irrigation of crops considering the natural and climatic factors using special software of FAO "AquaCrop". The training was conducted as part of the joint project "Support to the economic climate resilient livelihoods in agricultural communities in arid regions of Turkmenistan". One of the main advantages of "AquaCrop" is that it simulates the yield response of herbaceous crops to water and is particularly well suited to conditions in which water is a key limiting factor in crop production. With the practical application of "AquaCrop" and obtained knowledge, it is expected that farmers will increase the amount of yield by 25 % and reduce amount of water for irrigation by 20%.

On 23-24 November, a 2-day training on water use and irrigation water accounting was jointly held with the Ministry of Agriculture and Water Management of Turkmenistan within the framework of the joint project of UNDP and GEF "Energy Efficiency and Renewable Energy for Sustainable Water Management in Turkmenistan". The participants were familiarized with methods for calculating water losses through filtration in farm irrigation canals and ways to reduce these losses, conditions and methods for water use planning.

Source: www.tm.undp.org

Uzbekistan

UNDP opened its representative office in Uzbekistan in January 1993. UNDP interventions at country level are guided by Country Program Document (CPD). The current CPD covers the period of 2016-2020 and its four outcome areas are fully aligned with three key priorities of the United Nations Development Framework for Uzbekistan for the same period. Four outcome areas of CPD 2016-2020 include: i) inclusive economic development, with focus on employment and social protection; ii) environmental protection to ensure sustainable development; iii) effective governance to enhance public service delivery; and iv) protection of rights.

Under inclusive economic development, UNDP contributes to the enhancement of national capacities, particularly in evidence-based policymaking, and supports formulation of integrated national development strategies, ensuring equitable economic growth and increased opportunities for decent employ-

ment. This includes special attention to formulation of national SDGs.

UNDP promotes sustainable, transparent, equitable and accountable management of natural resources and upscale interventions in energy efficiency and promotion of renewable energy. It helps to strengthen communities' coping capacities to climate variability and climate-related hazards, and helps the country meet its obligations vis-à-vis international environmental conventions. Within CPD 2016-2020, UNDP focuses on supporting women's access and ownership of ecosystem goods and services, as well as community-based, gendersensitive climate and disaster-resilient solutions.

Within effective and inclusive governance, UNDP supports administration reform, including strengthening capacities to formulate evidence-based strategies/road maps toward effective public administration and specific

reforms to enhance excluded groups' social protection. To further promote protection of rights and access to justice, UNDP provides policy advisory and technical support to implement obligations under international conventions and United Nations treaty bodies, including supporting the development of institutional/procedural mechanisms to strengthen judicial independence; enhancing court administration; and increasing public trust in courts.

On 27 November, the UN Headquarters in New York hosted a <u>High-Level Event</u> on the launch of the UN Multi-Partner Human Security Trust Fund for the Aral Sea Region in Uzbekistan.

As part of the "Developing climate resilience of farming communities in the drought prone parts of Uzbekistan" project, <u>laser leveling of fields</u> was demonstrated on May 6 in the Repub-

lic of Karakalpakstan. Firstly, the use of this technology allows saving water resources. Secondly, the uniform distribution of water on the soil surface ensures the uniformity of sprouting, which contributes to increasing yields. After all, if the surface of the field is uneven, the water starts to accumulate excessively in the lowlands, but on the contrary, it is not enough on the hills, it means that there is no need to wait for harvest in such areas.

More than 120 farmers from Andijan, Namangan and Fergana regions are attending trainings being held from 14 to 16 March, on implementation of GLOBALG.A.P international standard. The introduction of Good Agricultural Practice (G.A.P.) helps to increase quality of agricultural products, expand export markets and increase farms' profits.

Source: www.uz.undp.org

6.5. UN Water

In 2013, the UN System Chief Executives Board for Coordination established the inter-agency coordination mechanism UN-Water. It coordinates the efforts of UN entities and international organizations working on water and sanitation issues. Over 30 UN organizations carry out water and sanitation programs.

The UN report, <u>Nature-based Solutions for Water</u>, on the state of the world's water presented on 19 March highlights that today 3.6 billion people live in areas that are water-scarce for at least one month each year. By 2050, this number will increase up to 4.8-5.7 billion people.

The Director-General of UNESCO pointed out to the need for searching for new ways to manage water consumption and protection in order to prevent serious problems related to water security. However, water quality is also affected as water bodies become increasingly polluted. Another problem will be floods. By 2050, 1.6 billion people (almost 20 % of the world's population) are projected to be affected.



In the beginning of July, the Sustainable Development Goal 6 <u>Synthesis Report 2018</u> on Water and Sanitation was launched. It reviews the global progress made towards achieving SDG 6 of the 2030 Agenda for Sustainable Development.

It builds on the latest data available for the 11 SDG 6 global indicators and will inform the High-level Political Forum for Sustainable Development during its in-depth review of SDG 6 in July 2018. The report represents a joint position from the United Nations family.

Sources:

www.unwater.org; www.sdg6monitoring.org/; http://enb.iisd.org/water/un/27/

UN MULTI-PARTNER HUMAN SECURITY TRUST FUND FOR THE ARAL SEA REGION IN UZBEKISTAN

On 27 November, the UN Headquarters in New York hosted a High-Level Event on the launch of the UN Multi-Partner Human Security Trust Fund for the Aral Sea Region in Uzbekistan (MPHSTF).

Objectives and Scope of the Fund

The Fund aims to be transformative, evidence- and human-rights based, and inclusive in its goal of catalyzing and strengthening a multi-sectoral and people-centered response to address the consequences of one of the world's biggest man-made environmental disasters. The MPHSTF provides a coherent strategy to coordinate aid flows and increase government ownership to enable sustainable results.

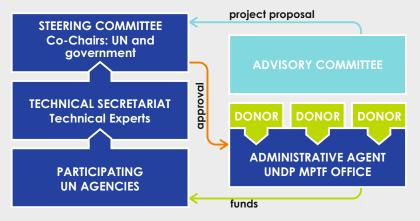
The MPHSTF's theory of change has identified **six clusters** of interrelated problems that include: i) Environmental insecurity; ii) Economic insecurity; iii) Food insecurity; iv) Health insecurity; v) Social insecurity; and vi) Ineffectiveness of donor assistance.

The MPHSTF is in line with the Busan development effectiveness principles on local ownership, focus on results, partnership of development partners, and transparency of aid. The assistance provided through the MPHSTF is based on a single programmatic framework, which has been developed based on the results of an independent socio-economic survey conducted in the communities most affected by the environmental disaster.

The Fund aims to build the resilience of communities in Uzbekistan affected by the Aral Sea ecological disaster through achieving the following **five outcomes**:

- 1) The stress on local communities due to the deteriorating environmental situation reduced
- 2) The employment and income generation opportunities for local communities increased
- 3) Local community access to affordable and healthy food and clean drinking water secured
- 4) The overall health of the local population improved and healthy lifestyle promoted
- 5) The living conditions of local populations improved, with particular focus on vulnerable groups such as women, children and youth

MPHSTF Governance and Financial Architecture



How to Contribute

Contributions to the MPHSTF may be accepted from governments, bi-lateral and multi-lateral donors, individuals and the private sector. Contributors are encouraged to make un-earmarked contributions to allow the Fund maximize the benefits of flexibility, risk pooling and coherence. Earmarked contributions by individual donors can be accepted provided that earmarking is at the Fund outcome level and thereby fully aligned to the Fund Strategy.

The MPHSTF will have an initial duration of 5 years, from 12 November 2018 to 31 December 2023. The Steering Committee has the authority to modify the MPHSTF's duration. The Administrative Agent has the authority to proceed with the closure of the MPHSTF by mutual agreement.

Source: MPHSTF web-site, <u>www.aral.mptf.uz</u>

6.6. UN Economic Commission for Europe

UN Economic Commission for Europe (UNECE) is one of five regional commissions of the United Nations set up in 1947. Its main scope of work includes environment, transport, statistics, sustainable energy, trade, wood products and forests, housing and land use, population and economic cooperation and integration.

UNECE and Water Convention

UNECE serves as the Secretariat for the Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention).



Activities in 2018

The largest event under the UNECE Water Convention was the <u>eighth session of the Meeting of the Parties</u> to the UNECE Water Convention held on 10-12 October in Astana, Kazakhstan. This was the first session of the Meeting of the Parties, with the participation of countries and Parties outside the pan-European region, marking a turning point in the global opening of the Convention. 88 UN countries and 35 Parties to the Convention and EU representatives participated in the event. The session was chaired by Mr. Peter Kovacs from Hungary. The Meeting consisted of a general segment and a high-level segment.

During the high-level segment, such issues were addressed as those related to the opening of the session and adoption of the agenda; status of ratification of the Convention and its Protocols; adoption of revised rules of procedure, as well as a special high-level session "Transboundary water cooperation: Sharing water for people, planet, prosperity and peace".

The general segment covered items 5 to 20 of the provisional agenda, including reporting under the Convention and on Sustainable Development Goal indicator 6.5.2; opening of the Convention, promotion and partnerships; implementation and compliance; support to implementation and application of the Convention through field projects and capacity development; European Union Water Initiative and National Policy Dialogues; water-foodenergy-ecosystems nexus in transboundary basins; identifying, assessing and communicating the benefits of transboundary water cooperation; adaptation to climate change in transboundary basins; water and industrial accidents; International Water Assessment Center; Program of work for 2019-2021; Election



of officers; date and venue of the ninth session of the Meeting of the Parties to the Convention.

The Meeting approved the number of decisions and documents, including the Program of work for 2019-2021 consisting of 7 program areas: (i) Increasing awareness of and accession to the Convention and application of its principles drawing on the benefits of cooperation; (ii) Supporting monitoring, assessment and information sharing in transboundary basins; (iii) Promoting an integrated and intersectoral approach to water management at all levels; (iv) Adapting to climate change in transboundary basins; (v) Facilitating financing of transboundary water cooperation; (vi) Reporting on Sustainable Development Goal indicator 6.5.2 and under the Convention; (vii) Partnerships, communication and knowledge management

In 2018 under the Water Convention and Protocol on Water and Health, UNECE organized following events as well: Twenty-sixth meeting of the Bureau of the Water Convention (8-9 February 2018); Twentieth meeting of the Bureau of the Protocol on Water and Health (26 April 2018); Joint session of the Working Group on IWRM and Working Group on Monitoring and Assessment (28-30 May); Twenty-seventh meeting of the Bureau of the Water Convention (31 May-1 June); UNECE Water Convention Workshop (26 July); Seventeenth meeting of the Compliance Committee (5-6 November); Twenty-first meeting of the Bureau of the Protocol on Water and Health (7-8 November).

Details: www.unece.org/env/water/meetings

Reporting under the Water Convention and Sustainable Development Goal 6.5.2

At its seventh session, the Meeting of the Parties to the Convention decided to introduce a regular reporting mechanism under the Convention starting with a pilot reporting exercise in 2017. The introduction of the reporting under the Convention coincided with the adoption of the Sustainable Development Goals and their targets in 2015. UNECE and UNESCO have been designated as "custodian agencies" for indicator 6.5.2 (proportion of transboundary basin area with an operational arrangement for water cooperation).

In order to maximize synergies and efficiencies, at the eleventh meeting of the

Working Group on Integrated Water Resources Management (Geneva, 18–19 October 2016), it was decided to combine the reporting under the Convention and the reporting on indicator 6.5.2 and to send only one template to all Parties to gather this information. Based on responses of the countries, UNECE prepared a synthesis report on the Progress on Transboundary Water Cooperation¹⁴ under the Water Convention, which was discussed during the Session, and decision was made to approve a revised reporting template under the Convention, as well as to develop the guidelines to assist countries in this process.

Representatives from ECE and UNESCO then introduced the publication "Progress on transboundary water cooperation: Global baseline for SDG indicator 6.5.2", and UN-Water with partners – "Sustainable Development Goal 6 Synthesis Report on Water and Sanitation 2018".

Analyzed data reveals that the average proportion of the transboundary basin area covered by an operational arrangement is 59 per cent, while only 17 countries have all their transboundary basins covered by operational arrangements.

Details: www.unece.org/environmental-policy/conventions/water/areas-of-work-of-the-convention/reporting-under-the-water-convention-and-sustainable-development-goal-652.html

UNECE Activities in Central Asia

Cooperation on Dam Safety

The third phase of the project "Capacity Building for Cooperation on Dam Safety" in Central Asia was continued. Under the project, the regional meeting on cooperation on dam safety in Central Asia was held (30-31 May, Almaty). The meeting reviewed the main outcomes of the activities on dam safety in Central Asia and discussed proposals on priority areas for further development of cooperation to ensure the safety of hydraulic structures at the national and regional levels. In addition, this event aimed to exchange relevant experiences among participants. In addition, a series of training seminars were held to improve the skills of water management specialists in Central Asian countries in the field of hydraulic structures safety (2-4 October in <u>Nurek</u>, Tajikistan; 16-18 October in Taraz, Kazakhstan).

Chu-Talas

In 2018, the <u>project</u> "Enhancing Climate Resilience and Adaptive Capacity in the Transboundary Chu-Talas Basin" (September 2015 – December 2018), funded by the Finnish Ministry for Foreign Affairs under the FinWaterWei II Initiative, was concluded. It was aimed to establish a framework for regular and strategic climate change adaptation action in the Chu-Talas River Basin and enable the Chu-Talas Commission and local authorities to facilitate climate change adaptation in the basin. Following the adoption of the strategic decision to cooperate closely with the GEF/UNDP project

¹⁴ Progress on Transboundary Water Cooperation under the Water Convention (ECE/MP.WAT/51)

on "Enabling Transboundary Cooperation and Integrated Water Resources Management in the Chu and Talas River Basins", the project has provided extensive inputs to the Transboundary Diagnostic Analysis (TDA) and Strategic Action Program (SAP) processes, and developed the TDA annex on climate adaptation. Specific project contributions included expert inputs supported by relevant background documents on climate projections and scenarios, organizing discussions and dedicated sessions during Chu-Talas Water Commission meetings, training provided for experts involved in drafting the TDA and SAP. The <u>SAP document</u> was presented and accepted during the 24th Session of Chu-Talas Water Commission on February 27, 2018.

National Policy Dialogues

The work to support regular meetings of National Policy Dialogues (NPDs) under the EU Water Initiative (EUWI) is ongoing in close cooperation with OECD and WECOOP2 project financed by EU. In 2018, particularly, Steering Committee Meetings of the National Policy Dialogue on IWRM were held in the Kyrgyz Republic and Tajikistan. At these high-level meetings, representatives of ministries and agencies discussed pressing issues of water governance reform, including development and implementation of sectoral strategies and programs. Members of the Steering Committees also discussed and made decisions on projects implemented by development partners. For example, in Tajikistan, the Steering Committee approved targets and the action plan to achieve them in the context of the Protocol on Water and Health with the assistance of a project funded by the Ministry of Foreign Affairs of Finland under the FinWaterWeill Program.

Pani

The Technical meeting of specialists and experts from the Republic of Tajikistan and the Islamic Republic of Afghanistan on "Cooperation between Tajikistan and Afghanistan on Hydrology and Environment for Sustainable Development of the Panj/Amudarya River Basin" was held on 10 May 2018 in Dushanbe, Tajikistan, which was followed by the Training on hydrology and environmental monitoring of catchment area of the Panj/Amu Darya River basin on 11-12 May 2018. The Technical meeting's agenda, the Training program and lists of participants are presented in a report available in English, Russian and Tajik. Finally, the project supported the development and

publication of a report entitled <u>Strengthening</u> <u>Cooperation in the Field of Hydrology and Environment Between Tajikistan and Afghanistan in the Basin of Amu Darya/Panj.</u>

Water Quality

In 2018, a study-tour on hydrobiological analysis was held for specialists of national hydrometeorological departments of Kazakhstan, Kyrgyzstan and Tajikistan on 6-7 September in Tashkent under the project "Strengthening Cooperation on Water Quality Management in Central Asia".

EECCA NWO

In November 2018, SIC ICWC in cooperation with UNECE and financial support of the Russian Federation organized the International Conference of the Network on "Water for Land Reclamation, Economic Sectors and Natural Environment in the context of Climate Change" (See Section "INBO").

In addition, together with UNESCAP, UNECE leads the UN's SPECA Program promoting economic cooperation among the seven participating countries of the Program (See Section "Economic and Social Commission for Asia and the Pacific").

International Water Assessment Center

The International Water Assessment Center (IWAC) is the center for international cooperation on integrated water resource management, which has been established as a subsidiary body of the Water Convention in Astana in 2017. The main purpose of IWAC is to support the implementation of the Water Convention and its relevant work programs. IWAC pays special attention to the protection and rational use of transboundary water resources in the neighboring countries of Kazakhstan and other Central Asian countries, as well as in countries within and outside the UNECE region.

IWAC Activities in 2018

Assistance to the Government of the Republic of Kazakhstan in organization of the panel session on "Water and Peace. How to promote transboundary water cooperation" under the IX Astana Economic Forum (17 May, Astana). The main objective of the panel session was to discuss best practices in transboundary water management and prospects for sustainable water resources management against the backdrop of a number of uncertainties and global challenges, including new financing mechanisms for transboundary water management, as well as new forms of cooperation.

- Organization of the Regional Meeting on Strengthening Intersectoral Cooperation on Water Management and Fostering the Role of Water to promote sustainable development and the implementation of the 2030 Agenda for Sustainable Development with the support of EU, OSCE, UNECE and Ministry of Agriculture of Kazakhstan (12-13 July, Almaty). The meeting was aimed at exchanging experience and lessons learned in intersectoral cooperation on water at the regional level and fostering the role of water to achieve SDGs, as well as developing regional proposals, including those that could be supported under the future Work Program of IWAC. More than 70 experts participated from Afghanistan, Iran, Kazakhstan, China, the Kyrgyz Republic, Mongolia, Russia, Tajikistan, Turkmenistan, and Uzbekistan.
- Support to the organization of the <u>Eighth</u> session of the <u>Meeting of the Parties</u> to the Water Convention (10-12 October, Astana). The session approved the Work Program of IWAC for 2019-2021, which aims to contribute to the implementation

of the Convention and its principles by giving practical effect to the vision of the Convention based on the priority areas of the Program of work of the Water Convention for 2019-2021.

Source: IWAC



6.7. Economic and Social Commission for Asia and the Pacific



Established in 1947, the Economic and Social Commission for Asia and the Pacific (ESCAP) is one of the five regional missions of the UN. ESCAP works to overcome some of the region's greatest challenges by providing results oriented projects, technical assistance and capacity building to member States in the following areas: macroeconomic policy and development; trade and investment; transport; social development; environment and sustainable development; information and communications technology and disaster risk reduction; statistics and sub-regional activities for development.

ESCAP in cooperation with UNECE manages SPECA, which was launched under the Tashkent Declaration on 26 March 1998.

The SPECA Economic Forum "Twenty years of SPECA: A new stage in regional cooperation for the 2030 Agenda for Sustainable Development" was held on 20-21 September in Almaty, Kazakhstan. The Forum considered how developments in transport, trade, environment, water and energy, statistics, knowledge-based development and gender and economy contributed towards regional economic cooperation and sustainable development of the SPECA's landlocked countries.

On 21 September, Almaty hosted the 13th session of the Governing Council of SPECA, where each SPECA Working Group (WG) was invited to present its activities. In this context, the WG on Water, Energy and Environment organized the following events in 2018:

- Bilateral meeting on Strengthening cooperation on hydrology and environment between Afghanistan and Tajikistan in the upper Amu Darya River basin and the training on capacity building (May, Dushanbe);
- Regional meeting on strengthening dam safety cooperation in Central Asia (May, Almaty).
- 22nd Session of the SPECA WG on Water, Energy and Environment (9 October, Astana). Delegations of Afghanistan, Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan participated in the event. The objective of this Session was to identify the areas for the Group to better address water, energy and environment challenges in the SPECA region, and to develop a vision for its draft ToR. Based on the discussions, particular areas were recommended for consideration by the participating countries to be included in the ToR of the Working Group; the need was underlined to develop a new SPECA Strategy on water, energy and environment mainstreaming SDGs and reflecting new development challenges in the SPECA region, e.g. the "Belt and Road Initiative".
- Regional meeting on water quality and training on capacity building (December, Almaty).

The SPECA Governing Council elected Turkmenistan to chair the Program in 2019.

The evaluation of the SPECA Program was conducted from September to December 2017, as stipulated by the decision of the 11th session of the Governing Council, to analyze programmatic achievements and results; identify strengths and challenges in the current institutional and organizational setup; mobilize resources and formulate recommendations for strengthening SPECA in fulfilling its mandate. In April 2018, the final report on the evaluation was published.

As far as relevance is concerned, there is much potential value in cooperation through SPECA, especially as the only platform that includes only the countries of Central Asia, Azerbaijan and Afghanistan, allowing them to coordinate their policies among themselves. Yet, the potential of SPECA as a platform for policy dialogue and coordination should be highlighted and political will demonstrated even stronger by the countries.

It transpires from the evaluation that SPECA has a lot of untapped potential to become an effective and relevant platform for cooperation. The identity and added value of SPECA should become much clearer for the countries themselves. They need to take strategic decisions on how they would want to use this platform, for what priority areas and issues, by when and how. As far as relevance is concerned, there is much potential value in cooperation through SPECA, especially as the only platform that includes only the countries of Central Asia, Azerbaijan and Afghanistan, allowing them to coordinate their policies among themselves. Yet, the potential of SPECA as a platform for policy dialogue and coordination should be highlighted and political will demonstrated even stronger by the countries.

The report includes the roadmap to turn the SPECA program into a policy coordination platform on key regional SDGs.

Sources: www.unescap.org, www.unece.org

6.8. United Nations Regional Center for Preventive Diplomacy for Central Asia



The United Nations Regional Centre for Preventive Diplomacy for Central Asia (UNRCCA) was established on the initiative of the five Governments of Central Asia in Ashgabat, Turkmenistan, in 2007 to support national authorities in identifying and addressing existing and potential threats to regional peace and security. In implementing its initiatives, UNRCCA interacts with regional and international organizations. The Centre began operations in 2008 and is led by a Special Representative of the Secretary-General.



In 2010, UNRCCA launched its water project to support five CA countries in their search for mutually acceptable water agreements. Particularly, UNRCCA promotes dialogues between the Central Asia states on transboundary water resource management and supports initiatives aimed at solving water, environmental and other problems influencing the situation in the Aral Sea basin. UNRCCA assists the Governments of the region in the development of a comprehensive mechanism for the effective use of water and energy resources, on the basis of recognized norms of international law, and taking into consideration the interests and needs of all states. It supports the governments in capacity building for water diplomacy by developing the skills and raising the awareness of civil servants in Central Asia and Afghanistan. The Centre focuses on collecting and sharing data for early warning and on hazards related to glacier melt and climate change, and on identifying the needs of countries in this area.

UNRCCA Activities in 2018

On 18 April, a capacity-building workshop "Ensuring equitable utilization and effective management of transboundary watercourses and Public Private Partnerships for infrastructure development" took place in Bishkek. The workshop was arranged by UNRCCA within the series of special events devoted to management of transboundary watercourses in Central Asia through international water diplomacy, law and institutions. Participants familiarized themselves with the basic principles, norms and instruments for joint and sustainable exploitation of transboundary watercourses, as well as with the best practices and international experience in this field. The event also included a separate interactive session focused on development of negotiation and mediation skills. It enabled the workshop attendees to brainstorm the possible models of equitable sharing of benefits through applying public-private partnerships.

On 19 April, back-to-back with the Workshop a meeting of experts of five Central Asian states took place to discuss ways of enhancing regional cooperation on the use and management of transboundary water-energy resources. The expert meeting arrived at specific recommendations, which further will be discussed and coordinated at the national level in the Central Asian states. The participants supported the continuation of such form of regular expert meetings under the UNRCCA auspices.

On **14 June**, UNRCCA hosted a <u>partnership</u> <u>meeting</u> to present the Centre's water-related activities and in particular the project titled "Strengthening Cooperation on Transboundary Water Sharing in the Aral Sea Basin." Special Representative of the Secretary-General for Central Asia, Natalia Gherman, briefed participants on the results achieved in building

partnerships in water management in Central Asia. In her remarks, SRSG Gherman highlighted the new positive dynamics in the region that are providing a window of opportunity to make concrete progress on transboundary water management. She invited those in attendance to partner with UNRCCA to support, including by co-sponsoring the Centre's ongoing and future activities in this field.

On 19 June, in Dushanbe, Tajikistan, UNRCCA and the UNESCO Almaty Cluster Office, in cooperation with the Committee for Environmental Protection under the Government of the Republic of Tajikistan, Swiss Agency for Development and Cooperation (SDC), University of Central Asia, Mountain Partnership and the Finance Centre for South-South Cooperation (China) organized a preconference forum on Climate and Water Dialogue. The event is conducted in the framework of the High Level International Conference on the International Decade for Action "Water for Sustainable Development", 2018-2028 (20-23 June, Dushanbe). The main objective of the Forum is to consider issues related to the melting of glaciers in the Pamir and Tien Shan mountains as the main sources of water for the countries of Central Asia and as a fact, which have become the most vulnerable against the background of climate change and weather conditions. In this context, expert discussions were held to identify the scale of the problem, to establish cooperation in organization of relevant research, including possible expeditions, in this important area. It brought together more than 100 participants, including researchers, practitioners, policy and decision makers, and partners from Central Asia and worldwide, working in the water sector. The participants engaged in crucial discussions on water security in contribution to the SDGs. The event also focused on recommendations on how to better achieve stronger partnerships and actions to address water-related issues, by enhanced cooperation.

On 20-23 June, SRSG Natalia Gherman participated in the <u>High-Level International Conference</u> on the International Decade for Action "Water for Sustainable Development" 2018-2028, jointly organized by the Government of the Republic of Tajikistan and the United Nations. Speaking at the action panel "Transboundary Cooperation and Water Diplomacy," SRSG Gherman informed participants of the achievements, activities and plans of the Centre in helping the Governments of Central Asia to build capacity in water diplomacy, as

well as in serving as a platform for cooperation and exchange on transboundary water management, the water-energy nexus and environmental degradation and climate change. The Centre contributed to the Final Declaration of the Conference, which inter alia prioritized water diplomacy and transboundary cooperation, as well as opening an inclusive multi-level and inter-sectoral dialogue to foster institutional arrangements and concrete solutions.

On **June 28-29**, expert consultations on IFAS reform were organized in Bishkek on the initiative of the Kyrgyz side with the assistance of UNRCCA. The participants had an opportunity to exchange constructively their views on a range of issues related to the improvement of IFAS activities.

On 23-30 October, the first meeting of the Central Asian Expert Forum was held in Tashkent and Bukhara, Uzbekistan. The event was coorganized by UNRCCA and the Institute for Strategic Studies at the President of Uzbekistan. The goal of the forum was to create a platform for leading Central Asian experts to discuss critical issues of regional development and security, to align the five countries' positions on the intergovernmental agenda and to elaborate practical proposals and recommendations for the Heads of State of the region as a contribution to the upcoming High-Level Consultative Forum, which will be held in March 2019 in Tashkent, Uzbekistan. The most important outcome of the first Central Asian Expert Forum was the agreement among participants to institutionalize the event to foster greater ties among the five countries' institutes of strategic studies, including joint research and other joint initiatives. Participants endorsed a concept for the standing platform and rules of procedure to guide their work going forward. The second meeting is to be held on 19-20 February, 2019 in Tashkent.

On 18-19 December, UNRCCA organized a meeting of experts in Almaty, Kazakhstan, focused on enhancing water cooperation in Central Asia. The participants were able to take stock of the UNRCCA water-related activities over the past ten years and have assessed the Centre's contribution to the regional dialogue on transboundary water management in Central Asia. UNRCCA submitted for discussion a draft of the new Work Program for Water and Environment for 2019-2021. The participating countries positively acknowledged the role of

the Centre, and underlined the importance of UNRCCA as a viable platform for regional dialogue. They stressed a good timing for enhancing regional cooperation through dialogue and preventive diplomacy initiatives, with UNRCCA's support. The participants also discussed the recent developments in the region, including a growing number of bilateral arrangements between the states of the Central Asia, and promising outcomes of the high-level events, such as, for example, the Summit of IFAS, and the International Decade for Action "Water for Sustainable Development", 2018-2028.

In cooperation with SIC ICWC, four early warning bulletins were published with information on current and forecast situation in the Syr Darya and Amu Darya river basins in 2018, as well as the first edition of the Water Yearbook: Central Asia and around the Globe, which features key water-related events and developments in Central Asia and beyond in 2017.





6.9. World Meteorological Organization



The World Meteorological Organization (WMO) is a specialized agency of the United Nations. It was established in 1950. It is the UN system's authoritative voice on the state and behavior of the Earth's atmosphere, its interaction with the oceans.

It facilitates international cooperation to create the networks for meteorological, climate, hydrological, and geophysical observations, as well as exchange, processing, and standardization of relevant data, and helps in technology transfer, staff training, and research. The organization organizes global events aimed at joining efforts to combat climate change, disasters and exchange information for their prevention.



WMO revamped its <u>strategy on water</u> in order to face up to the unprecedented challenges posed by water stress, floods and droughts and lack of access to clean supplies.

In June, WMO Executive Council held a **special one-day dialogue** on water as part of a concerted drive to strengthen hydrological services and to improve forecasting, monitoring and use of water supplies and to tackle the problem of too much, too little or too polluted water.

WMO formally assumed the direction of the **World Water Data Initiative**, given that better data is a key to better management of water. It also <u>launched a new innovation call from the WMO HydroHub</u> facility to support operational hydrology.

The Hydro Conference, from 7 to 9 May, brought together 215 providers and users of hydrological services from 85 countries to strengthen knowledge-sharing and coordination. Delegates agreed that sustainability of water resources and reduction of disaster risk can only be achieved by addressing the full value chain, from data collection to the production of efficient hydrological services that allow informed decision and policymaking.

WMO and the Green Climate Fund (GCF) have signed a <u>formal agreement</u> to work together to leverage WMO expertise on weather, climate and water to increase effectiveness of GCF funded activities and support low carbon and climate resilient development. Under a new Memorandum of Understanding, WMO will support GCF accredited entities to maximize the benefits of their investments in hydrological and meteorological systems and associated climate information services. It seeks to provide pragmatic ways to bring the best available science into climate finance at a time when climate finance opportunities and climate risks are both increasing.

Source: www.wmo.org

6.10. International Fund for Agricultural Development

The International Fund for Agricultural Development (IFAD) is a multilateral financial institution established in 1977. It mobilizes resources to eliminate malnutrition and improve agricultural productivity and incomes for rural poor in developing countries. It provides direct financing in the form of loans and grants, attracts additional resources to implement projects and programs. Currently it has a number of ongoing projects in Central Asia.



Uzbekistan

IFAD has been investing in Uzbekistan since 2012, providing financing worth US\$81.7 million to three loan-financed projects/programs that are intended to directly benefit 98,800 households. IFAD projects work to enable sustainable income growth for rural people through viable small-scale agricultural production and rural enterprise systems, with a specific focus on dekhan farmers, rural women and youth.

In 2018, the following **projects** continued to be implemented:

Dairy Value Chains Development Program;

Horticultural Support Project.

Tajikistan

In Tajikistan, IFAD loans work to improve the livelihoods of poor rural people by strengthening their organizations and enabling them to access productive technologies and resources.



Key activities include: natural resource management; implementing land reforms; and strengthening local institutions and grass-roots organizations.

In 2018, under the <u>Community-Based</u> <u>Agricultural Support Project</u>, IFAD and the Republic of Tajikistan signed a <u>financing</u> <u>agreement</u> worth \$39 million to reduce poverty and stimulate inclusive economic growth in poor rural communities.

The <u>Livestock and Pasture Development Project</u> <u>Il</u> continued to be developed. It is focused on developing institutions; enhancing productivity and improving animal health; developing pasture management.

The Kyrgyz Republic

IFAD has invested in rural development in Kyrgyzstan since 1996. Up to present, IFAD has provided US\$97.8 million in financing projects to improve livestock productivity; enhance climate resilience of pastoral communities; and

improve integration of smallholder livestock farmers into remunerative markets.

Projects:

<u>Livestock and Market Development Programme;</u>

<u>Livestock and Market Development Programme II;</u>

Access to Markets Project

Source: www.ifad.ora

6.11. United Nations Educational, Scientific and Cultural Organization



UNESCO is the United Nations Educational, Scientific and Cultural Organization. It coordinates international cooperation in these areas. Established in 1945, it includes 193 member-states. UNESCO's programs contribute to the achievement of the SDGs defined in Agenda 2030. Key areas of activity include the following five program sectors: education, natural sciences, social and human sciences, culture, and communication and information.



In 2018, UNESCO continued implementing the following projects, including in the area of nature and water resources:

"Enhancing Water Security in Central Asia" project. The activity focuses on addressing water security challenges in Central Asia through advanced research, education, capacity building and cooperation aiming at water experts, policy makers, civil servants and young scientists;

"Capacity Building for Sustainable Water Management in Uzbekistan" project. Under the pro-

ject, the baseline assessment of activities related to training on irrigation, land reclamation and agriculture was conducted. The output of this activity will be an integrated Capacity Building Program;

"Building the Resilience of Communities Affected by the Aral Sea Disaster through a Multi-Partner Human Security Fund for the Aral Sea" project (Uzbekistan);

"Increased Capacity for Water Security through Scientific Cooperation of Young Water Professionals in Uzbekistan" project. The Tashkent Office promotes and supports the strengthening of the water education targeting the youth as the most receptive to the education for sustainable development and sustainable water use practices. There are two main youth organizations that cover environmental issues including water. However, it is necessary to strengthen their focus on water.

Capacity building activities carried out by UNESCO in Central Asia are presented in Section "Professional development and training courses".

Sources: UNESCO

6.12. Food and Agriculture Organization

Food and Agriculture Organization of the United Nations (FAO) was established in 1945. Nutrition, climate change, gender equality, social protection, and decent rural employment are cross-cutting issues of FAO activity in the Central Asian region.

More than 14 million adults and some 4.7 million children in Europe and Central Asia suffer from severe <u>food insecurity</u>, FAO said in a report "<u>Regional Overview of Food Security and Nutrition: Europe and Central</u> Asia 2018" released in 2018. In the last decades, the region as a whole



has achieved significant progress in fighting food insecurity, however, since 2014 the decreasing trend on the prevalence of undernourishment has been stagnating at 6 percent, and in 2016 and 2017 the number of undernourished people in Central Asia has been slowly growing in absolute terms.

In May, an FAO Regional Initiative "Sustainable Natural Resource Management under a Changing Climate" was launched for Europe and Central Asia. It provides a mechanism for support to FAO member countries in building resilience to climate change and natural disasters for sustainable food systems. The Initiative also creates the regional mechanisms to assist countries in accessing climate finance, such as the Green Climate Fund (GCF) and the Global Environmental Facility (GEF7). The Initiative works through three main components: i. Policy alignment, coordination and cooperation; ii. Provision and collection of data; iii. Capacity development, strengthening national capacities for sustainable approaches to natural resource management.

In April 2018, FAO <u>started the project</u> that helps public and private extension service providers in Azerbaijan, Kyrgyzstan, Tajikistan and Uzbekistan improve technical skills and enhance knowledge on modern crop management. The project's main activities are trainings for national extension staff and assistance in formulating national strategies for



more effective agricultural extensions. On 19 November, a one-week training workshop on organic production, certification and marketing started in Bishkek, Kyrgyzstan, for selected extension specialists. A similar workshop has already taken place in Tashkent, Uzbekistan.

The 31st session of the <u>FAO Regional</u> <u>Conference for Europe</u> (ERC) was held for all FAO Members in the Europe and Central Asia region on 16-18 May in Voronezh, Russian Federation. Participants discussed sustainable agriculture and food systems in Europe and Central Asia in a changing climate, as well as Eagriculture.

Source: www.fao.org

6.13. International Law Commission

The International Law Committee (ILC) is a subsidiary body of UNGA, consisting of thirty-four members of recognized competence in international law, who sit in their individual capacity and not as representatives of their Governments. The task of ILC is encouraging the progressive development of international law

and its codification. It was established in 1947. The Commission has no representatives of the Central Asian states in its composition.

At the seventieth Session of the Commission, reports were presented on the following items: subsequent agreements and subsequent prac-

tice in relation to the interpretation of treaties; identification of customary international law; protection of the atmosphere; peremptory norms of general international law (jus cogens); protection of the environment in relation to armed conflicts; succession of States in respect of State responsibility; and immunity of State officials from foreign criminal jurisdiction. The Commission also decided to include in its long-term program of work the topics (i) Universal criminal jurisdiction and (ii) Sea-level rise in relation to international law.

With respect to the topic "Protection of the atmosphere", the Commission had before it the fifth report of the Special Rapporteur (A/CN.4/711), which was devoted to questions concerning implementation, compliance and

dispute settlement. The protection of the atmosphere from pollution and degradation, such as global warming, sea-level rise, ocean acidification and other effects of climate change, has been adequately legally regulated. As a result of its consideration of the topic at the present session, the Commission adopted, on first reading, a draft preamble and 12 draft guidelines, together with commentaries thereto, on the protection of the atmosphere.

Concerning the seventieth anniversary of the Commission, it held commemorative events, in New York on 21 May 2018, and in Geneva on 5 and 6 July 2018, under the theme "70 years of the International Law Commission – Drawing a balance for the future".

6.14. International Court of Justice

The International Court of Justice (ICJ) is one of the six principal organs of the United Nations. It was established in 1945. It delivers judicial and advisory functions. No judges from Central Asia sit in the International Court. Cases submitted to the Court involve a wide variety of subject matters: territorial and maritime disputes; consular rights; human rights; environmental damage and conservation of living resources; international responsibility and compensation for harm; the immunities of States, their representatives and assets; interpretation and application of international treaties and conventions. In 2018, two cases directly related to water were examined by the Court.

Dispute over the Status and Use of the Waters of the Silala (Chile v. Bolivia)

On 6 June 2016, the Republic of Chile filed an Application instituting proceedings against the Plurinational State of Bolivia with regard to a dispute concerning the status and use of the waters of the Silala. Chile contends that "due to Bolivia's insistence on denying that the Silala River is an international watercourse and Bolivia's contention that it has rights to the 100% use of its waters" and requests the Court to adjudge and declare that:

"(i) the Silala River system, together with the subterranean portions of its system, is an international watercourse, the use of which is governed by customary international law;

- (ii) Chile is entitled to the equitable and reasonable use of the waters of the Silala River system in accordance with customary international law;
- (iii) Under the standard of equitable and reasonable utilization, Chile is entitled to its current use of the waters of the Silala River:
- (iv) Bolivia has an obligation to take all appropriate measures to prevent and control pollution and other forms of harm to Chile resulting from its activities in the vicinity of the Silala River;
- (v) Bolivia has an obligation to cooperate and to provide Chile with timely notification of planned measures which may have an adverse effect on shared water resources, to exchange data and information and to conduct where appropriate an environmental impact assessment, in order to enable Chile to evaluate the possible effects of such planned measures, obligations that Bolivia has breached."

By an Order of 1 July 2016, the Court fixed 3 July 2017 and 3 July 2018 as the respective time limits for the filing of a Memorial by Chile and a Counter-Memorial by Bolivia. The Memorial of Chile was filed within the time limit thus fixed.

By a letter dated 14 May 2018, the Agent of the Plurinational State of Bolivia requested the Court, for the reasons set out in that letter, to extend by two months the time-limit for the filing of the Counter-Memorial. In the absence of any objection by Chile to that request, the Court, by an Order dated 23 May 2018, extended to 3 September 2018 the time-limit for the filing of the Plurinational State of Bolivia's Counter-Memorial.

In its Counter-Memorial, Bolivia submits three Counter-Claims and respectfully requests the Court to adjudge and declare that:

- Bolivia has sovereignty over the artificial channels and drainage mechanisms in the Silala that are located in its territory and has the right to decide whether and how to maintain them;
- (ii) Bolivia has sovereignty over the artificial flow of Silala waters engineered,

- enhanced, or produced in its territory and Chile has no right to that artificial flow:
- (iii) Any delivery from Bolivia to Chile of artificially-flowing waters of the Silala, and the conditions and modalities thereof, including the compensation to be paid for said delivery, are subject to the conclusion of an agreement with Bolivia".

By its Order of 15 November 2018, the Court fixes the following time-limits for the filing of these written pleadings: 15 February 2019 for the reply of the Republic of Chile and 15 May 2019 for the Rejoinder of the Plurinational State of Bolivia.

Source: ICJ report at the 73^{rd} Session of UNGA, 2018 (A/73/4)





International Water Organizations and Initiatives

7.1. Geneva Water Hub



The Geneva Water Hub is a joint project of the Swiss Confederation (Agency for Development and Cooperation, Global Program Water Division) and the University of Geneva.

The Geneva Water Hub was established to help prevent water conflicts at an early stage and to promote water as an instrument of peace and cooperation.

During 2018 the Geneva Water Hub (GWH) acting as the Secretariat of the Global High-Level Panel on Water and Peace (GHLPWP) followed up on the implementation of the recommendations of the Panel as defined in the Report "A Matter of Survival".

The report and its recommendations were presented at two global events: at the World Water Forum in March 2018 and the Stockholm World Water Week in August 2018. Special events organized by the Geneva Water Hub were held on those occasions.

The GWH organized a side-event on the "Global Observatory on Water and Peace: Towards Effective Transboundary, Inter-Sectoral and Local Water Cooperation" during the eighth session of the Meeting of the Parties of the UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes held in October 2018 in Astana.

The GWH also collaborated with French and Swiss authorities to organize an <u>international</u> <u>conference</u> to celebrate the 40th anniversary of the world's first groundwater transboundary agreement on the Geneva aquifer. The exchanges of the conference enabled to offer promising ways to apply the institutional and technical solutions of this example to other aquifer systems of the world.

Regarding the follow-up of specific recommendations, the GWH has given particular attention to three topics: the protection of water infrastructure during and after armed conflicts, the Sahel region and the strengthening of water data.

Protection of Water Infrastructure. The GWH followed up to the recommendations of the GHLPWP, including on strengthening respect for and implementation of International Humanitarian Law in relation to water. The Panel's findings and recommendations in relation to post-conf-

lict situations were discussed during the Workshop on "Water in Post-Conflict Situations and the Role of the Security Council", co-organized by the GWH's Platform for International Water Law and the Faculty of Law of Lund University in February 2018.

On the 13-14 December 2018 the GWH's Platform for International Water Law convened a round-table of experts in Geneva to discuss the "Geneva List of Principles on the Protection of Water Infrastructure During and After Armed Conflicts". The Geneva List is a reference document prepared for the use of parties to conflicts, international organizations, and practitioners working in the contexts of armed conflicts, humanitarian emergencies and in the reconstruction of infrastructure. It is the first text that systematizes the rules applicable to the protection of water infrastructure during armed conflicts as well as in pre-conflict and postconflict situations. The drafting process of the Geneva List has been led by the GWH's Platform and included collaborations with other academic institutions such as the American University of Beirut, University of Amsterdam, Duke University, North Hampshire University, Leiden University, Lund University and the University of Trento as well as international and non-governmental organizations.

During the 2018 <u>Geneva Peace Week</u> the GWH in collaboration with UN Environment and Duke University presented concrete examples demonstrating the targeting of water infrastructure during armed conflicts in different regions of the world, including in South America, Middle East, Northern Africa, and Europe. Moreover, back-to-back to the Geneva Peace Week, the Environmental Peacebuilding Association and the GWH joined their forces to launch an Interest Group on Water to bring water at the forefront of reconstruction efforts.

The discussions and exchanges showed that there exists an important convergence bet-

ween different organizations and experts regarding the need to establish a document stating the principles applicable to water infrastructure during and after armed conflicts. Discussions on this topic will continue in 2019.

Water in the Sahel region. The GWH devoted particular attention to the African region of Sahel, which is characterized by water stress, by prolonged periods of tension and by armed conflicts. In November, the GWH organized a safe space for experts to discuss the situation and to make recommendations. The participants at the round-table agreed that water is the key to peace and development in the Sahel. The "water-peace nexus" should be at the centre of policy making for the region. Moreover, political aspects have to be an integral part of decision making on water. In areas of armed conflicts, careful balance has to be established between the basic humanitarian needs relating to water and the necessity that armed forces provide security of water resources.

Data-driven decision making and cooperation for peace and security. In support of the Sustainable Development Goals, the German govern-

ment with the support of Australia invited the WMO and the GWH to organize together a mobilization for water data and peace in November 2018. The aim of this event was to create a coalition of Geneva missions to help push the agenda forward through their national governments. This mobilization focuses on data regarding water quantity but also water quality and consider the additional socioeconomic factors that influence the water linked conflicts.

Education. In January 2018 at the World Economic Forum in Davos, seven key actors in the study of water governance joined forces in order to launch the <u>Universities Partnership on Water Diplomacy and Cooperation</u> (University of Geneva, IHE Delft Institute for Water Education, Oregon State University, Indian Institute of Technology Guwahati, International Water Management Institute, University for Pace and German-Kazakh University). This Partnership is open and welcome every actor contributing to education on the water and peace agenda.

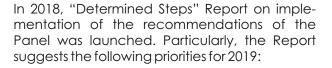
During 2018 the GWH also organized a number of training courses (See in Section "Water Education").

7.2. Global High-Level Panel on Water and Peace

The Global High-Level Panel on Water and Peace was launched in November 2015 upon the initiative of Switzerland.

15 countries have co-convened the Panel: Cambodia, Colombia, Costa Rica, Estonia, France, Ghana, Hungary, Jordan, Kazakhstan, Morocco, Oman, Senegal, Slovenia, Spain, and Switzerland.

Two years of work resulted in the report "A Matter of Survival" presented on 14 September 2017.



- 1. Define with the available clarity the priorities relating to development of the Global Observatory on Water and Peace (in particular the existing and prospective regional centres and partners).
- 2. Define the short-term objectives of substantive projects such as the Geneva List of Principles on the Protection of Water Infrastructures During and After Armed Conflicts.

- 3. (Continue to) engage with existing (and new) partners to develop a new financing mechanism for transboundary water cooperation.
- 4. Engage with the research institutes and think tanks such as the International Peace Institute (New York) to ensure that water issues are present in their activities relating to the problems of international peace and security.
- 5. Engage closely with the EU efforts to develop more effective water diplomacy.
- 6. Engage with countries such as Russia, Turkey and Peru who have expressed prepa-

redness to host visits and programs of the Geneva Water Hub.

- 7. Define the activities within the UN system in a way that strengthens coordination among various UN organizations, organs, funds and agencies.
- 8. Elaborate the position of the Geneva Water Hub towards a global conference on international water cooperation proposed in the report of the GHLP-WP in light of the current activities within the UN.

9. Prepare a v (Davos, Horasis, Bled Strategic Forum, Geneva Peace Week etc.) where the participation of the Geneva Water Hub would be particularly important.

See also subsection "<u>Geneva Water Hub</u>" acting as the Secretariat of the Global High-Level Panel on Water and Peace (GHLPWP).

For composition and tasks of the Global Panel, see 2017 Water Yearbook.

Source: Geneva Water Hub, www.genevawaterhub.org/panel-water-peace

7.3. Global Water Partnership



The Global Water Partnership (GWP) is a global network of action including over 3,000 partners in 183 countries.

GWP is comprised of 13 Regional Water Partnerships (RWPs) and 86 National Water Partnerships (NWPs), with the mission to advance governance and management of water resources for sustainable and equitable development.

GWP transboundary water management: Achievements in 2018

GWP's transboundary work aims to contribute to water security and peace through four key components: i) facilitating regional dialogues; ii) building mechanisms for cooperation in managing shared water resources; iii) monitoring progress on SDG target 6.5; and iv) building capacity on transboundary governance and sharing knowledge. GWP facilitated numerous events around the world in 2018 in support of these activities.

In November, **GWP Mediterranean** has successfully adopted a 'stepwise' approach to building collaboration. The region worked with partners – including the Global Environment Facility and the Union for the Mediterranean – to organise a roundtable meeting on the waterenergy-food-ecosystems nexus. Gathering more than 70 high-level stakeholders from the Middle East and North Africa, as well as the Mediterranean region, the event focused on building nexus considerations into national and transboundary water resources management planning. Participants explored how to enhance coordination, while also integrating gender, youth, and employment objectives.

GWP South America supported greater collaboration in the management of transboundary water resources through three key

regional events in 2018. A course on international water law focused on underground water resources; a seminar updated participants on implementation of SDG 6 in the region; and a workshop brought stakeholders from different sectors together to discuss these two topics.

GWP Central and Eastern Europe has worked hard over the past two years to create a more participatory approach to water resources management in the Tisza Basin shared by Hungary, Serbia, Slovakia, and Romania. The work consisted of a series of workshops and involved around 50 organisations and 200 decision-makers from the five riparian countries. By consulting all stakeholders on their priorities, including their current and future needs for water, the team was able to identify potential conflict areas and adopt a 'shared vision planning' tool.

GWP facilitated cooperation over the Lancang-Mekong River (China and Southeast Asia). Together with the Lancang-Mekong Water Resources Cooperation Centre it organized a workshop, resulting in concrete next step for joint project among 6 riparian countries for improved cooperation. In addition, GWP Technical Committee, GWP Southeast Asia, U.S. Army Corps of Engineers and the Mekong River

Commission jointly conducted a build capacity training on the use of collaborative modelling as a tool to facilitate multi-stakeholder engagement processes.

GWP Central Africa worked with the Economic Community of West African States and other partners to convene a workshop aiming to improve understanding of the SDG 6 framework, with particular focus on SDG indicator 6.5.2 determining the proportion of a transboundary basin area having an operational arrangement for water cooperation. Stakeholders from seven countries, two river basin organisations, and research and development agencies attended the meeting. Working together, they formulated a set of recommendations to advance transboundary water cooperation throughout the region.

In 2018, **training workshops and an online course** took place on water governance, international water law, and multi-stakeholder processes.

These were targeted at government institutions that have responsibilities for management of shared waters, and non-governmental stakeholders actively engaged in transboundary water governance.

Workshops were held in Africa, Asia, and Latin America and provided useful opportunities for the exchange of knowledge and ideas among a wide range of practitioners.

Source: Global Water Partnership, Stockholm

GWP for the Countries of Caucasus and Central Asia (GWP CACENA) is one of the 13 RWPs established in 2002. The network unites 9 national water partnerships, including Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Mongolia, Tajikistan, Turkmenistan, and Uzbekistan.

Activity in 2018

A series of events (meetings, roundtables, workshops, interviews) to strengthen understanding on key water development priorities were held in CACENA region where CWPs were either an organizer or active contributor. National water related authorities, local administration, water specialists, regional/international organizations, financial institutions, academia, NGOs and various stakeholders, attended these events.

The following knowledge products were produced: publication "Leaving no one behind: Meeting the SDGs through IWRM in rural communities in Armenia"; the short film "Climate Change through the eyes of Young People" (ARM); publication "Innovative solutions to support reforms in the water sector of Uzbekistan", etc.

GWP CACENA conducted the following **training events**: "Possible effective investments and technological solutions for municipal treatment facilities" (Kyrgyzstan); three-day training "Use of modern methods of drinking water investigation in accordance with international standards"(Kazakhstan); seminar-training within the "Partnership to increase participation in researches" programme (Uzbekistan); on-site seminar "Transboundary cooperation and joint management of water resources"(Kazakhstan); roundtable on Strengthening the Civil Society Role in Decision Making (Georgia); practical seminar on methods for cleaning the collectordrainage network (Kyrgyzstan); training "Application of water security indicators in the decision-making in the Kyrgyz Republic"; roundtable "Problems of irrigated agriculture in the context of climate change and adaptation measures"(Tajikistan); discussion on new water law (Georgia); the political dialogue of Armenian stakeholders on 2030 Agenda for sustainable development, etc.

Some of international events that GWP CACENA took part and contributed: The Central Asia Climate Change Conference; Regional Process towards the 8th World Water Forum; International Conference "Joint actions to mitigate the consequences of the Aral catastrophe: new approaches, innovative solutions, investments" (Uzbekistan); North and Central Asian Forum on Implementation of the Sustainable Development Goals.

During the year almost all nine CWPs were requested to provide consultations to national and local authorities, and commenting of water policy related documents.

Most of events during 2018 at country level supported by CWPs were focusing on awareness raising for IWRM and water security (water security dialogues), and they were welcomed and supported by the governments.

Source: www.gwp.org/en/CACENA/

7.4. High-Level Panel on Water



The High-Level Panel on Water (HLPW) consisting of 11 Heads of State and Government was convened in 2016 by the UN Secretary General Ban Ki-moon and World Bank Group President Jim Kim. Members of the Panel included also H.E. Emomali Rahmon, President of the Republic of Tajikistan.

Over the 2 years of its mandate, the Panel aimed to mobilize support for a new approach to water that would underpin a more sustainable approach to global development.

On 14 March 2018 in New York the High-Level Panel on Water presented an outcome document "Making Every Drop Count: An Agenda for Water Action", which offered recommendations for key lines of action as listed below.

See also details on members, mandate, action plan and some leadership initiatives of the Panel members in 2017 Water Yearbook.

Source:

https://sustainabledevelopment.un.org/HLPWater

7.5. International Commission on Irrigation and Drainage



The International Commission on Irrigation and Drainage (ICID) was established in 1950 as a scientific and technical organization with a view to develop scientific technologies in engineering, agriculture, irrigation and drainage, economy, ecology, and social sciences to increase food production, protect environment, improve water quality, improve land productivity, and manage floods and disasters.

Kazakhstan, Kyrgyzstan, Tajikistan, and Uzbekistan are the members of ICID.

ICID Activities in 2018

The Baltic Regional Conference "Digitization of land improvement activities and opportunities for future development" was organized by the Estonian Ministry of Rural Affairs in cooperation with the International Commission on Irrigation and Drainage on 23-25 May 2018 in Laulasmaa. More than 150 experts participated in the Conference. Mr Marko Gorban, Deputy Secretary General for Agricultural and Rural Life Policies, Ministry of Rural Affairs of the Republic of Estonia opened the meeting. The main theme of the Conference was dedicated to new digital technology in the land improvement sector. The President of ICID Mr. Felix Britz Reinders in his welcome speech underlined the importance and relevance of this theme in irrigation and drainage development. Each country presented a plenary paper. This way, the Conference addressed various innovation technologies in construction and reconstruction of drainage systems and the participants exchanged on application of digital technology in land improvement activities.

Source: <u>www.agri.ee/en/history/digitization-land-improvement-activities-and-opportunities-future-development</u>

The 8th Asian Regional Conference was held from 2-4 May 2018 in Kathmandu, Nepal on the theme "Irrigation in Support of an Evergreen Revolution". The conference was hosted by the Nepal National Committee of ICID jointly with the Department of Irrigation, Government of Nepal and other partners. More than 700 participants had attended the meeting. Major attention was paid to five sub-themes: Enabling small holders' capacity to obviate farmers' distress; coping with recurring droughts and floods in the context of climate change; modernizing irrigation systems for better servi-

Recommendations of the High-Level Panel on Water

FOUNDATIONS FOR ACTION

- **UNDERSTAND WATER.** Commit to making evidence-based decisions about water, and cooperate to strengthen water data, such as through the HLPW World Water Data Initiative.
- VALUE WATER. Use the HLPW Principles on Valuing Water to sustainably, efficiently, and inclusively allocate and manage water resources and deliver and price water services accordingly
- MANAGE WATER. Implement integrated approaches to water management at local, national, and transboundary levels, strengthen water governance, and ensure gender equality and social inclusion.

AT THE LOCAL, COUNTRY AND REGIONAL LEVELS: LEADING AN INTEGRATED AGENDA

- ENSURE UNIVERSAL ACCESS TO SAFE WATER & SANITATION. Address gaps in service delivery models, technology and behavior change which limit access to sustainable drinking water and sanitation for all including the needs of women, girls, people with disabilities, and communities in vulnerable situations, recognizing access to safe drinking water and sanitation services as a fundamental human right.
- BUILD RESILIENT SOCIETIES AND ECONOMIES, REDUCING DISASTER RISK.
 - O Shift the focus of disaster management from response to preparedness and resilience.
 - O Create incentives for water users, including irrigators, to use water efficiently, to not pollute water, and to promote its reuse.
 - O Take action where water-related risks may exacerbate fragility, conflict, or forced displacement, and affect peace and security.
- INCREASE WATER INFRASTRUCTURE INVESTMENT. Improve the enabling environment for investment in sustainable water-related infrastructure and services, in order to at least double current levels of investment.
- **NURTURE ENVIRONMENTAL WATER**. Value environmental contributions to water management, prevent degradation and pollution of watersheds, rivers, lakes and aquifers, and where necessary, restore and maintain acceptable environmental conditions and water quality.
- **DEVELOP SUSTAINABLE CITIES.** Implement an integrated approach to urban water management in line with the Habitat III New Urban Agenda, aiming at more adaptable and resilient infrastructure.

AT THE GLOBAL LEVEL: CATALYZING CHANGE, BUILDING PARTNERSHIPS & INTERNATIONAL COOPERATION

- **PROMOTE INNOVATION.** Support programs, such as the HLPW Water Innovation Engine, which foster the uptake of new water-related business models and technologies.
- **STRENGTHEN PARTNERSHIPS.** Motivate all water use sectors to value water, embrace water stewardship, strengthen their collaboration, and participate in integrated water resource management.
- INCREASE GLOBAL WATER COOPERATION. Strengthen the UN system's support to member states and its coordination of water matters by establishing UN meetings on water at the highest possible level, consider a scientific panel on water and promote international cooperation. Using the UNGA Water Action Decade as a platform for policy dialogue, exchanges of best practices, and building global partnerships.

ces; enabling Water Users Institutions for sustainability of irrigation systems; irrigation, ecosystem services, and aquatic biodiversity. During the inaugural ceremony a publication titled "Contribution of Agricultural Water to the Rural Development in Asia" was released by President Felix Reinders. The publication is a Technical Report of the Asian Regional Working Group (available for download from www.icid.org/asrwg_report_2018.pdf). The conference provided a valuable networking opportunity and set the stage for further cooperation.

Source:

www.icid.org/8tharc_nepal2018/8arc%20brfreport_2018.pdf

More than 500 experts from around the world gathered in Saskatoon, the heart of the Canadian Prairies to attend the International Conference and 69th IEC Meeting of ICID from 12-17 August 2018. Under the main theme of the conference "Innovation and Sustainable Agriwater Management: Adapting to a Variable and Changing Climate" the following three subthemes: Competing Water Demands; Resilient Agriculture – Adapting Agriculture to Climate Change; and Irrigation and Drainage in Perspective were discussed in details.

President Honorary Dr. Chandra A. Madramootoo conducted the opening ceremony and on behalf of the Government of Canada Honorable Ralph Goodale, Minister of Public Safety and Emergency Preparedness welcomed the audience. Honorable Goodale remarked that water is critical to agriculture in arid climates and to realize that potential in the face of frequent severe floods and droughts caused by climate change, better water management is essential.

Two main concerns were highlighted during the conference: the growing challenges of climate change leading to extreme flood and drought and, secondly, the food security threat for the growing population stemming from unsustainable water use globally,

Organizers of the conference held special sessions for young professionals and farmers, as well as workshops and symposiums, where the participants discussed the socio-economic value of irrigation, water-food-energy nexus, climate change mitigation and water quality management.

Source: ICID News, 2018, Third Quarter, www.icid.org/69iec canada 2018.html

7.6. International Network of Basin Organizations



International network of Basin Organizations (INBO) was established in 1994 in Aix-les-Bains (France) to promote integrated water resources management at the level of river basins as an essential tool for sustainable development. Basin organizations, governmental administrations in charge of water, and bi and multilateral cooperation organizations are the members of INBO. INBO member organizations belonging to the same geographic region created 8 regional networks of INBO, including African, Latin American, Mediterranean, etc.

In 2018, INBO coordinated about ten thematic sessions of the 8th World Water Forum. These sessions allowed addressing the issues of integrated management and governance of transboundary river, lake and aquifer basins, the adaptation, which is now essential, to the effects of climate change on water resources and the information and training of all stakeholders concerned. Two Special Sessions, among the most attended throughout the Forum, were devoted to "Strengthening Citizen Participation in Basin Management" and to "Water Information Systems: Data and Tools for Water Management and for Making the Right Decisions".

On the occasion of the Brasilia Forum, INBO, the International Office for Water (IOWater) and their partners, with the support of the French Agency for Biodiversity issued two Handbooks: "Water Information Systems: Administration, Processing and Exploitation of Water-Related Data", and "Participation of Stakeholders and the Civil Society in the Basins of Rivers, Lakes and Aquifers".

The 16th International Conference of the "EUROPE-INBO" took place from 17 to 20 October in Seville, Spain. It gathered 215 representatives of national administrations and

authorities, basin organizations, NGOs, international and regional institutions and academia from 42 countries. The work of the conference was organized around a workshop on Invasive Alien Species and 4 roundtables:

- Prevention of drought: Adaptation planning at the basin level, reuse and desalination;
- Efficiency and multiple benefits: The interest of combining hydraulic infrastructure and nature-based solutions to face the issues of climate change;
- International cooperation: Twinning and peer-to-peer exchanges, neighborhood area, transboundary waters;

 Revision of the Water Framework Directive: Improve coordination with other European Directives (Marine, Flood, Renewable Energy...)

The conference concluded with adoption of the Seville Declaration and passing of the INBO chairmanship from Ireland to Spain until the next conference in Lahti, Finland in 2019.

INBO published the new issue of "INBO Newsletter" (No.26, March 2018) with the key highlights of Network's activity.

Source: https://www.inbo-news.org/en

The Eastern Europe, Caucasus, and Central Asia Network of Water Management Organizations (EECCA NWO)

EECCA NWO is one of the eighth regional networks of INBO. It was established in 2010 to exchange views, experiences, and information on various aspects of water-management activity. The Network is administered by SIC ICWC, with the support of the Government of Russian Federation and the UNECE, and Network's activities are coordinated with those of INBO.

The International Conference of EECCA NWO on "Water for Land Reclamation, Economic Sectors and Natural Environment in the context of Climate Change" was held on 6-7 November in Tashkent. The conference brought together 57 participants from Belarus, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Turkmenistan, Uzbekistan, France, Swiss, and Switzerland. Summarizing the discussions, the participants have adopted a resolution focusing on future plan of activity of the Network.

The key topics addressed at the conference were as follows:

- strategy of survival in the face of imminent water scarcity;
- transboundary water cooperation: how to ensure irrigation-energy-nature nexus in the context of climate change;
- water conservation and rational nature use;
- cooperation of regional organizations in the Aral Sea Basin (IFAS-ICWC-ICSD) in searching for additional water reserves,
- building capacities of water-management, basin and land reclamation organizations.

Based on presentations and papers of the conference, two volumes of a collection of scientific papers titled "Water for Land Reclamation, Economic Sectors and Natural Environment in the context of Climate Change" were issued.

Source: www.eecca-water.net/

7.7. International Water Resources Association and World Water Congress



International Water Resources Association (IWRA) is a global knowledge network of water experts. In 2018, it celebrated its 47th anniversary. Since 1971, the Association has grown to become a preeminent key actor working internationally for the sustainable use and management of the world's water resources.

Since 1973, IWRA holds a World Water Congress every three years in various locations around the world. In 2018, IWRA launched the organisation of the XVII World Water Congress to be held in Daegu, Korea (11-15 May, 2020). The theme for the Congress - "Foundations for Global Water Security and Resilience: Knowledge, Technology and Policy".

A new dedicated member space "IWRA Community" was opened online. In addition to the current tools on IWRA's old member space, IWRA members also have access now to new features including: news feed with up-to-date announcements on new publications, policy briefs, upcoming events and webinars, calls for abstracts/papers/project proposals, etc.; posting and searching for professional opportunities, services and calls for contributions from across the IWRA Community.

Eight issues of its flagship journal <u>Water International</u> and a new <u>IWRA Policy Briefs Green</u> <u>Series</u> (exclusively for members) were published.

The Association kept networking at multiple scales, including the World Water Forum, the Korea International Water Week in September and eight IWRA webinars.

IWRA has regional and national chapters in China, India, Japan, and Oceania. These chapters provide an opportunity for extensive regional and local networking among IWRA members and a platform for them to exchange knowledge and experiences, as well as discussing specific regional and local issues. The Association hosted a webinar for its China Chapter on "China's Water Resources Management in the New Age" (December 11th).

The dedicated member-led task forces prepared two main reports on Water quality and Smart water management (SWM). The latter report showcases 10 SWM case studies from around the world from both developed and developing countries, to demonstrate the enabling factors and potential barriers faced in implementation of SWM.

Source: IWRA Communication Division, 2018 IWRA Activity Report

7.8. OECD Initiative on Water Governance



The Water Governance Initiative of the Organization for Economic Cooperation and Development (OECD) is an international multistakeholder network of members from the public, private and non-for-profit sectors gathering regularly to share good practices in support of better governance in the water sector. The Water Governance Initiative (WGI) provides a multistakeholder technical platform to share knowledge, experience and best practices on water governance across levels of government; advises governments in taking the needed steps for effective water reforms through

peer-to-peer dialogue and stakeholder engagement across public, private and nonprofit sectors; provides a consultation mechanism to raise the profile of governance in the Global Water Agenda; supports the implementation of the OECD Principles on Water Governance in interested member and non-member countries, basins and cities by scaling up best practices and developing indicators.

The Survey: Taking stock of the use and dissemination of the OECD principles was carri-

ed out between 15 and 24 January 2018 to collect inputs on: the use of the OECD Principles, in particular on how they guide and inform activities and practices; to what extent and how the OECD Principles have been disseminated; perceived needs for improving the uptake and dissemination of the OECD principles. The survey targeted the members of the OECD Water Governance Initiative and the broader Global Coalition for Good Water Governance. By the date of the survey, the OECD principles have been endorsed by more than 170 stakeholder groups or governments. The survey indicated to growing attendance in the WGI plenary meetings and increased contribution to preparation and dissemination of WGI materials. As a whole, most of respondents expressed a high level of satisfaction with the overall WGI and Working Groups and considered that the WGI should pursue its activities.

The OECD Water Governance Initiative and the Global Coalition for Good Water Governance handed over to the OECD Secretary-General the **Brasilia Multistakeholder Pledge** to Implement the OECD Principles on Water Governance (March 21st). The Pledge

emphasizes the urgent need to implement improved water governance as set out in the OECD Principles on Water Governance. The Pledge is an important water governance outcome of the 8th World Water Forum in Brasilia and will build momentum for policy implementation and improved decision-making in water leading up to the 9th World Water Forum in Senegal, 2021. It will also serve as a contribution to achieve the 2030 Agenda for Sustainable Development.

On 12-13 November 2018, the OECD Water Governance Initiative held its 11th meeting in Zaragoza, Spain. The meeting gathered more than 80 practitioners, policymakers and representatives from major stakeholder groups.

The participants were updated on WGI contribution to global agendas, discussed the 2019-2021 WGI Programme of Work and the objectives, content and outputs of the Working Groups, shared knowledge and experience on recent water governance reforms, research and events, learned from Spain's water governance, etc.

Source: <u>www.oecd.org/cfe/regionalpolicy/water-governance-initiative.html</u>

7.9. Stockholm International Water institute and World Water Week

The Stockholm International Water Institute (SIWI) is a Swedish not-for-profit foundation, which seeks to strengthen the governance of fresh water globally, regionally, nationally, and locally. Its priority areas include cooperation over shared waters, informed international policy and improved water governance. In 2017, the 2018-2021 strategy was adopted, based on which SIWI intends to influence decision-makers, by combining its convening power with their expertise in water governance, and by building dialogue, improving policies, and changing water governance practice.



World Water Week

The World Water Week in Stockholm is organized by SIWI annually to share opinions and lessons globally. The 2018 edition of World Water Week gathered more than 3,600 participants from 133 countries and addressed the theme "Water, Ecosystems and Human Development", with the focus on nature-based solutions. An obvious conclusion was drawn on a need for wise blending of green and grey solutions for the current problems.

SIWI Activity in Central Asia

During the 2018 World Water Week, SIWI convened an event in partnership with IHE Delft and CAREC entitled "Leveraging informal water diplomacy in high level processes". The event served to elevate knowledge and discussion around informal water diplomacy as a key component for international water agreements, opportunities for informal initiatives to contribute to the enabling environment of official processes, as well as the remaining challenges to establish and maintain linkages between informal and formal water diplomacy processes. Participating invited basin represen-

tatives shared their experience of engaging and promoting informal processes in the context of acute challenges to water cooperation in their respective regions with a focus on knowledge sharing, trust building, and benefit and cost assessments.

SIWI also organized and contributed to water diplomacy sessions in the course of various regional events, such as the capacity building training in water diplomacy for small basin councils (24-25 April, Uzbekistan), second Central Asian International Environmental Forum (8 June, Uzbekistan), International High-Level Conference on the International Decade for Action "Water for Sustainable Development" (20-21 June, Tajikistan), and the training for officials in environmental management for sustainable development (September, Kazakhstan). SIWI facilitated a side event entitled

"Opportunities for Water Diplomacy in Conflictprone Regions" at the Eighth session of the Meeting of the Parties to the Water Convention (October, Kazakhstan). The event sought to elevate discussion around the role of shared water resources as a tangible entry point for sustained dialogue and conflict prevention in regions prone to political tensions and armed violence. Representatives of Somali, Iraq and Afghanistan reflected on the evidence base for lessons learnt about cooperation and conflict between riparian countries from diverse water diplomacy processes. Key themes focused on how water dialogues have benefitted their countries - technically, socially, environmentally and economically, creating opportunities 'beyond water' to enhance mutual understanding.

Source: www.siwi.org

7.10. World Water Council



The World Water Council (WWC) is an international multi-stakeholder platform. It was established in 1996 on the initiative of renowned water specialists and international organizations, in response to an increasing concern about world water issues from the global community.

In 2018, the Council continued its **key initiatives**:

- financing water infrastructure;
- cities at the heart of growth;
- water and climate change;
- integrating World Water Forums;
- involving key political actors;
- integrated water resource management.

8th World Water Forum

Organized every three years by the World Water Council with a host country, the Forum is the world's largest event on water.

The Forum brings together the whole international community to promote awareness, build political commitment and trigger action on critical water issues at all levels. The 8^{th} edition was held in Brasilia, Brazil from 18-23 March 2018 under the overarching theme – Sharing Water.

The Brazilian partners of the Forum were the Ministry of Environment of Brazil, represented by the National Water Agency (ANA), the Government of the Federal District, represented by the Regulatory Agency of Water, Energy and Sanitation (ADASA) and the Brazilian Association of Infrastructure and Base Industry (ABDIB). The 8th World Water Forum marked the largest edition in history of the event, bringing water to the top of the political and societal agendas.



The 8th Forum in numbers Over 10,600 participants registered in the main conference 109,581 registered visitors to the Citizens Village, including 37,829 children, 20,410 youth and 3,585 teachers 172 countries represented • 12 heads of state 56 government ministers and over 100 delegations 134 parliamentarians • 180 local authorities 83 judges and prosecutors Nearly 2,000 press professionals; the Forum was featured more than 15,000 times in the media during the Forum week Over 350 sessions and events in the main conference. More than 350 activities in the Citizens Village and the Expo 97 exhibitors from 19 countries in the Fair and Expo area 846 volunteers 2 500 direct jobs and 5,500 indirect jobs were created by the Forum

Source: 8th World Water Forum Highlights

The Ministerial conference was held as part of the Forum. From Central Asia, Minister of energy and water resources of Tajikistan U.Usmonzoda, Minister of water management of Uzbekistan Sh.Khamraev, and Director General of the Department for water management and land reclamation of the Kyrgyz Republic K.Tashtanaliev made official statements during the event. Finally, The Ministerial conference approved the declaration "An urgent call for decisive action on water".

95 sessions were held as part of the thematic process. The main topics included Climate, People, Development, Urban, Ecosystems, and Finance, and cross-cutting themes, such as Sharing, Capacity, and Governance. Many sessions brought attention to Sustainable Development Goals (SDG) and to how to transform water management process to achieve these Goals successfully. The Parliamentary Conference brought together 134 parliamentarians from 20 countries. The central theme of the conference was – The Role of Parliaments and the Right to Water. The Parliamentarian Declaration was issued finally.

One of features of the Forum was the participation of the judiciary. As a result, judges, prosecutors, and experts issued the "Charter of Brasi-

lia". A mock water justice court was held for the first time in the Forum. The experiment was attended by judges from six different countries. The Global Institute of the Public Prosecutors Office, which brings together members of public prosecution offices of the various nations of the world around topics related to the protection of natural resources, also drew up the "Declaration of the Public Prosecutor Office on the Right to Water", which was signed by nine countries.

Representatives of local and regional authorities presented at the Forum released a Call for Action that encouraged all stakeholders to promote sensitive integrated water practices, taking into account basic human rights and services and gender approaches; bring forward legislation that enables fair, efficient and sustainable use of water resources; strengthen and increase decentralized funding and innovative finance mechanisms; promote urban water resilience through planning out risk and climate change adaptation; strengthen the capacity of local governments and citizens in water sensitive governance.

Source: Report by SIC ICWC on participation in the 8WWF

Extraordinary General Assembly of the World Water Council

The World Water Council organized its Extraordinary General Assembly on 17th of March in Brazil. The General Assembly considered work progress of a special task-force, which drafted recommendations on improvement of Council's performance and governance. They proposed amendments to the Constitution and regulatory documents regarding names and quantity of colleges, gender representation, cancellation of pre-election 'bids', organization of work and representation in the Board and the Bureau, as well as changes in the selection procedure and terms of the Council's President. Delegates, by the majority of vote, approved the procedure of e-voting, which was approbated for making the above changes in May 2018.

8th General Assembly: Election of the new President

The 8th WWC GA brought together 250 members from 35 countries (30 November – 1 December, Marseilles, France). GA elected the new Board of Governors and the President – Mr. Loic Fauchon – for a term from 2019 to 2021. The

Assembly also approved the triennial budget and adopted the work program and amendments to the By-Laws.

Source: www.worldwatercouncil.org

Visit of the World Water Council's President to Uzbekistan



The President of the World Water Council Professor Benedito Braga visited Uzbekistan on 4-7 June 2018. During the visit, the President Braga met with representatives of state agencies and international organizations in Uzbekistan. In particular, meetings were held at the Legislative House of the Uzbek Parliament

(Oliy Majlis), MWM, TIIAME, GEF Agency of IFAS, SIC ICWC, and the OSCE Office in Uzbekistan.

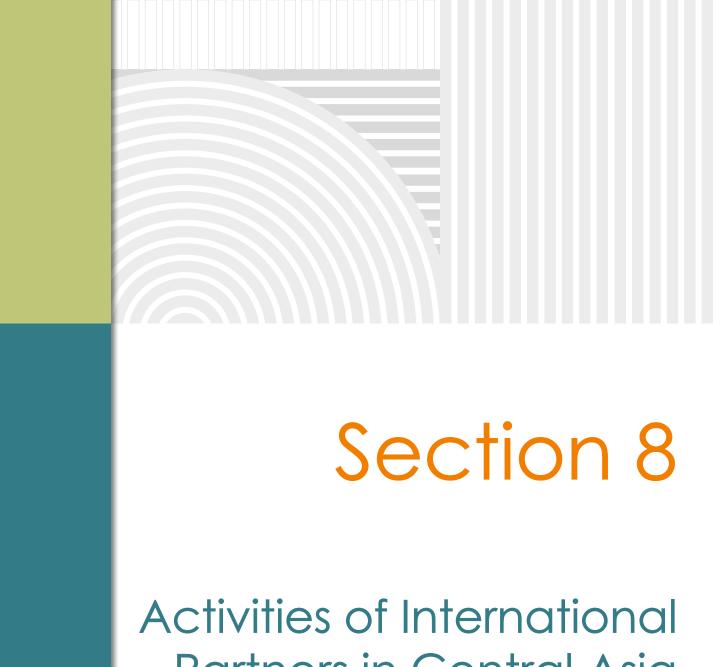
President Braga took part in the Central Asian International Environmental Forum "Strengthening Cooperation on Environment and Sustainable Development" and the International Conference "Joint Actions to Mitigate the Consequences of the Aral Catastrophe: New Approaches, Innovative Solutions, and Investments".

Ben Braga made a trip to the Aral Sea area (Prearalie), particularly to the cities of Nukus and Muynak, where he together with other guests visited a graveyard of ships and got acquainted with environmental situation in this region. President Braga also visited Samarkand, where he had the opportunity to see historical and cultural sites of this ancient oasis. In the course of the visit, he was also presented the water management system in the Zerafshan Valley.

Source: <u>www.cawater-info.net/int_org/wwc/braga_uzbekistan.htm</u>







Partners in Central Asia

8.1. Asian Development Bank



The Asian Development Bank (ADB) has provided technical assistance support and made investments in the water sector in the Central Asia region since its first lending (to Afghanistan) in 1970. Investments to date, totaling \$3.6 billion include flood management, irrigation and drainage, water supply and sanitation, hydropower and knowledge and capacity building support. Regional technical assistance support for transboundary water resources management have been more bilaterally, like enhanced river basin management in the Chu-Talas (with Kazakhstan and the Kyrgyz

Republic) and Panj river basin (for Afghanistan and Tajikistan). Acting nationally with investments and thinking regionally with technical assistance support place ADB as a leading development partner in the region.

ADB investments in 2018 have focused on strengthening national climate and disaster risk resilience. Investment approvals in 2018 include for the Kyrgyz Republic to strengthen climate change and disaster resilience of the water sector with modernized and well-maintained infrastructure, enhanced agricultural and onfarm water management, and improved disaster risk management capacities.

In Tajikistan, the <u>Water Resources Management in the Pyanj River Basin Project</u> (additional financing) will support the State Agency for Hydrometeorology to provide timely and accurate forecasting of extreme weather events. Also in Tajikistan, the <u>National Disaster Risk Management Project</u> will reduce the socioeconomic vulnerability of Tajikistan to natural hazards.

Efforts continue to improve water supply and sanitation (WSS) infrastructure and services in Central Asia. In 2018, ADB approved lending to the Kyrgyz Republic for the Issyk-Kulwastewater Management Project. This will upgrade and expand the existing wastewater systems, build institutional capacity, and strengthen the sustainability of relevant WSS utilities.

ADB approved its first urban sector project for Tajikistan – the <u>Dushanbe Water Supply and Sanitation Project</u>, which will support climateresilient WSS infrastructure. Similarly, the <u>Western Uzbekistan Water Supply System Development Project</u> will improve WSS in the Republic of Karakalpakstan by upgrading and expanding water supply networks, improving climate

change awareness and resilience and building institutional capacity. This is a critical response to provide reliable water supply to the residents in the project area which is highly exposed to and impacted by a combination of human-driven and climate change impacts. River flow from the Amu Darya River, the primary source of water supply for the area, is expected to decline further.

ADB has supported the <u>Central Asia Regional Economic</u> (CAREC) <u>Program for regional cooperation and integration</u>. In 2017, it introduced agriculture and water as a key pillar under the CAREC 2030 strategy. This now provides a conducive and trusted platform to engage on water scarcity and water productivity issues and in future engage on transboundary water resource management.

ADB President made a Special Address at the 17th Ministerial Conference on Central Asia Regional Economic Cooperation on 15 November 2018 in Ashgabat, Turkmenistan. In this, he highlighted the expansion of CAREC 2030 to include water and agriculture.

ADB also participated in regional events including the International High-Level Conference on International Decade for Action, "Water for Sustainable Development", 2018-2028, held in Dushanbe.

ADB hosted the <u>Asia Water Forum 2018:</u> <u>Information, Innovation, and Technology</u> in Manila. This provided a suitable opportunity for participation by government representatives from Kazakhstan, Kyrgyz Republic, Tajikistan and Uzbekistan government representatives. The event included knowledge and experience sharing on the latest innovations and technology in the water sector.

Source: Asian Development Bank

8.2. European Bank for Reconstruction and Development



The European Bank for Reconstruction and Development was established in 1991. It invests in projects facilitating the transition to open market, as well as the development of business activity. The EBRD work in Central Asian countries on water issues is very broad ranging from rehabilitation of the water supply and wastewater infrastructure in major cities to irrigation projects in agriculture and drip irrigation by smallholder farmers.

Beyond investing in basic infrastructure, the Bank also supports government authorities with policy dialogue and sector reforms that help to reform management structures and drive efficiency. For instance, EBRD is currently working with municipalities on reforming tariff methodology in order to improve the financial and operational sustainability of water companies in municipalities.

To achieve this, the EBRD works with relevant government bodies and partners with international institutions (EU and Swiss State Secretariat for Economic Affairs), as well as with the climate funds including GEF, CIF's Pilot Program for Climate Resilience, and Green Climate Fund. Taking into account the particular vulnerability of the Central Asian countries to the effects of climate change, the EBRD seeks to include in its projects the building of resilience to water scarcity, and adaptation to extreme weather conditions and other consequences of a changing climate.

In 2017 for instance, the Government of Kazakhstan and EBRD launched the South Kazakhstan Water Supply Project that will rehabilitate irrigation water conveyance infrastructure in three regions of Kazakhstan, provide rural employment to approx. 40,000 households, and make the water system more efficient and resilient to the impacts of climate change.

Case studies of EBRD water projects in Central Asia in 2018

Increasing climate resilience of water supplies in Tajikistan. EBRD provided the State Unitary

Enterprise 'KMK' with funds to on-lend to seven North Tajik water companies to fund priority capital investments and improve municipal water. The project supports water efficiency measures by provision of critical infrastructure, including supply network and metering, as well as tariff reforms, and technical capacity development for water companies and municipalities on adapting to climate change combined with stakeholder participation and awareness raising activities focused on climate change risks to end-users.

Technical Cooperation. In the Kyrgyz Republic, EBRD is implementing a Technical Cooperation with the Kyrgyz Government to develop Climate Smart Water Companies in the Kyrgyz Republic. The project is designed to build capacity with 16 water companies across the country on how to reduce climate risk to their infrastructure investments and service capabilities.

Upgrading irrigation systems in Kazakhstan. Climate change is forecast to alter precipitation patterns and reduce water availability in many parts of Kazakhstan, especially in the south. In 2017, the EBRD provided a \$180 million loan to the national water operator, RGP Kazvodkhoz, to restore water-supply and irrigation infrastructure in three regions of southern Kazakhstan in order to stimulate rural employment and to make the water system more efficient and resilient to the impacts of climate change. The improvements, including the use of modern drip-irrigation technologies, will result in at least 0.18 km³ of water being saved per year.As part of the project, the EBRD is also working with the Kazakh authorities on an ambitious tariff-reform and capacity-building program that will help the national water operator to make the new irrigation systems financially sustainable in the long term.

Green Economy Financing Program: Supporting water efficiency measures thorough local banks. Launched in 2016, 'ClimAdapt' is an EBRD Green Economy Financing Facility that provides financing to enterprises, farmers and households via local banks and microfinance institutions for improved water and energy use and sustainable land management measures in Tajikistan. The facility impact metrics include reduced water consumption, energy efficiency gains and reduction in soil erosion loss.

8.3. German Society for International Cooperation

Deutsche Gesellsc für Internationale Deutsche Gesellschaft

The German Society for International Cooperation or Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) carries out its activity in Central Asia under the Transboundary Water Management in Central Asia Program (2009-2020) as part of the Berlin Process.

The Berlin Process is an offer of the German Federal Foreign Office to the countries of Central Asia to support them in water management and to make water a subject of intensified transboundary cooperation. It is open to all stakeholders in the Central Asian region and supplements the EU Strategy for a New Partnership with Central Asia which was adopted during the German EU Presidency in June 2007 and will be renewed in 2019. The Program is committed to coordinating with all other donor organizations active in the water sector in Central Asia.

The Program is currently in its last phase mainly focusing on fostering regional institutional cooperation, strengthening transboundary river basin management and implementing national pilot projects. Support is given to the development of the Aral Sea Basin Program 4, as well as to the regional working group on institutional strengthening of IFAS. With the Program's expert support the regional working group developed the concept for ASBP-4, which was approved by the IFAS Summit on 24 August 2018 in Turkmenistan.

GIZ works with the BWOs Amu Darya and Syr Darya to strengthen capacities and rendered also technical support. In 2018, the following pilots were supported - the installation of fish saving technology at the Kok-Aral Dam at the Northern Aral Sea in Kazakhstan; technical assessments and feasibility studies on the Beshkent Canal and Nawruz Pumpina Station in Soghd Province in Tajikistan; and the installation of measuring devices and capacity building at the Batken Water Administration in Kyrgyzstan.

Technical assistance in the form of water measuring devices, vehicles and IT equipment was rendered to the partner organizations in Turkmenistan. The Program also supported the experience exchange of Central Asian water specialists and decision makers at international events, such as the Brazil Water Forum or the Stockholm Water Week.

In Uzbekistan, the Program received a financial contribution from the European Union to implement component 1 on water governance within the frame of the EU Program "Sustainable management of water resources in rural areas in Uzbekistan" (2016-2019). A water and water infrastructure cadasters were created, as well as technical support and capacity development organized for basin administrations in 6 pilot regions. The Program also engaged in developing an IWRM curriculum for Master studies at the Academy of Public Administration under the President of Uzbekistan and a new basin planning curriculum for the TIIAM Master studies.

Source: GIZ Transboundary Water Management in Central Asia Program

8.4. European Union – Central Asia: Environment and Water Cooperation Platform



The EU-Central Asia Platform for Environment and Water Cooperation was established at the EU-CA High Level Conference in Rome (Italy) in 2009. The WECOOP2 project supports the Platform by strengthening policy dialogues and cooperation at the regional level and between EU and CA.

Activities of the Platform in 2018

The Foreign Ministers of the five Central Asian countries - Kazakhstan, the Kyrgyz Republic, Tajikistan, Turkmenistan, and Uzbekistan – met with EU High Representative for Foreign Affairs and Security Policy Ms. Federica Mogherini on 23 November 2018 in Brussels for the 14th EU-Central Asia Ministerial Meeting. "Central Asia is a region where there is a strong and increasing demand for new, diversified partnerships, and a region that is looking for more engagement with the European Union," said Ms. Federica Mogherini during the meeting. [...] "EU is also interested in increasing this partnership. It is in our interest that Central Asia develops as a more resilient and more closely interconnected economic and political space, and this is something we are actively supporting," she said.

Assistance provided by the European Commission, combined with assistance provided by EU Member States individually, makes the European Union the number one donor in the region. The global envelope for EU assistance to Central Asia (through the Development Cooperation Instrument) rose to €1 billion for the period 2014-2020.

The EU-CA Working Group on Environment and Climate Change is an essential component of the Platform. It helps identifying priorities for regional cooperation between EU and CA. In 2018, the 7th and 8th meetings of the Working Group were held. They provided update on progress in EU-CA regional cooperation in the areas of environment and climate change. Ways were defined to improve access by CA countries to the IFIs funding for projects on environment, energy, waste management and water sectors. Key directions were identified for further strengthening of CA regional organizations active in environment, adaptation to climate change and water. In addition, it was

agreed that the project would facilitate identifying and elaborating the projects on improved air quality or waste management for IFIs investment.

The ministers and high-ranking diplomats responsible for environment, climate change and water policies of the Central Asian countries, the European Union and the EU Member States met for the 6th European Union – Central Asia High-Level Conference held on 24-25 January 2019 in Tashkent under the EU-Central Asia Platform for Environment and Water Cooperation. The participants agreed that the Platform should operate in the following key areas: environmental governance, circular economy, sustainable production and consumption, climate change (adaptation and mitigation), integrated water resource management. They also committed themselves to continuing joint work in these areas.

The WECOOP2 project assisted Central Asian countries in formulating project proposals related to improving air quality and household waste management, as well as climate change and biodiversity. The project proposals were submitted to the international financial institutions for consideration and received their positive evaluation.

Source: WECOOP2 Project, http://wecoop2.eu/

8.5. Organization for Security and Co-operation in Europe



The OSCE has a long history in supporting its Central Asian participating States in the area of regional water management, focusing on water governance and support for transboundary water management, training and capacity development, research and development of standards and legislation. Following are some highlights of the OSCE's work in these areas during 2018.

The OSCE Program Office in Astana (POiA) continued to promote transnational water cooperation through supporting the activities of the Intergovernmental Chu-Talas Water Commission between Kazakhstan and Kyrgyzstan, in cooperation with UNECE, the OSCE Program Office in Bishkek and Kazakhstan's Hydro-Meteorological Centre's territorial unit. POiA also supported an international conference on

transboundary water co-operation in the Zhaiyk (Ural) river basin between Kazakhstan and the Russian Federation, which was co-organized with the Western Kazakhstan's Regional Administration and the Zhaiyk-Ural Public Fund Ecological Movement. As part of its youth empowerment activities, POiA organized a regional summer school on sustainable water governance for young water specialists from the Central Asian countries and Afghanistan, in cooperation with the German-Kazakh University and the Regional Research Network "Central Asian Water". By joining efforts with the International Fund for Saving the Aral Sea and the National Agrarian University, POiA conducted a four-day training seminar for water management university lecturers on the OSCE-developed sustainable water resources management education module.

The **OSCE Program Office in Bishkek** (POiB) supported the sixth meeting of the Working Group on environmental protection under the Secretariat of the Intergovernmental Chu-Talas

Water Commission between Kazakhstan and Kyrgyzstan, held in November 2018 in Bishkek. The meeting was organized in collaboration with the OSCE Program Office in Astana and focused on the results of water quality assessments conducted in the transboundary Chu-Talas river basin. Since 2014, POiB is providing support to the Mayor's Office of Kara-Suu city in rehabilitation of the irrigation system, with the purposes of mitigating tensions and conflicts related to water use between multi-ethnic communities of the Kara-Suu district in southern Kyrgyzstan, and improving the economic conditions of the local residents through provision of uninterrupted water supply for agricultural use.

The OSCE Program Office in Dushanbe (POiD) supported the State Service for Supervision over Hydro-Technical Facilities under the Ministry of Energy and Water Resources as well as the Agency of Land Reclamation and Irrigation in the development of regulatory frameworks. POiD supported the organization of the International High-Level Conference on the International Decade for Action "Water for Sustainable Development" 2018-2028 which discussed ways in which global stakeholders can support implementation of the Decade and of the 2030 Agenda for Sustainable Development. At the conference, POiD co-organized the Action Panel on "Transboundary Cooperation and Water Diplomacy" together with UNECE and the Office of the Co-ordinator of OSCE Economic and Environmental Activities. POiD also organized its 2nd Capacity Building workshop for young researchers from Central Asia and Afghanistan in Water Policy Studies, and supported the Tajik National Commission on Irrigation and Drainage (TajNCID) in conducting their annual events.

The OSCE Center in Ashgabat (CiA), through the Aarhus Center project, provided expert

In the picture: The Monitoring Group analyses pollution level in the Syr Darya River Photo credit: the State Committee for Ecology and Environment Protection of the Republic of Uzbekistan

support for further developing the national legislative framework in the area of sustainable use of water, as well as numerous capacity building activities for national and local authorities across Turkmenistan on sustainable resources management. CiA promoted discussions among national institutions and NGOs on the development of national environmental legislation with particular focus on best practices from the OSCE region on legislative and policy frameworks in the area of water management. In addition, CiA facilitated participation of relevant authorities from Turkmenistan in regional discussions and contacts with peers from other OSCE participating States relevant for sustainable development processes and environmental protection, in particular concerning water resource management and the activities of the International Fund for Saving the Aral Sea.

The OSCE Project Co-ordinator in Uzbekistan (PCUz), in collaboration with the OSCE Program Office in Bishkek, organized a study tour for ten experts on water and disaster management from Uzbekistan and Kyrgyzstan to the Swiss-Italian border. The tour focused on international disaster risk reduction in areas with transboundary water flows. Within the framework of the project "Monitoring Pollution in the Syr Darya River Basin and Assessment of the Transboundary Impact of Toxic Waste", PCUz provided assistance to the State Committee of the Republic of Uzbekistan on Ecology and Environmental Protection.

Furthermore, PCUz continued its support to the Uzbek Agency of the International Fund for Saving the Aral Sea (IFAS) for regular monitoring of the development of biodiversity on wetlands that have formed on the former grounds of the Aral Sea. As part of its support to the 25th Anniversary of ICWC, PCUz published 300 copies of the book "The water resource management in Uzbekistan", drafted and compiled by the ICWC Scientific Information Center.

The Office of the Co-ordinator of OSCE Economic and Environmental Activities (OCEEA) contributed to organization of the International High-Level Conference on International Decade for Action "Water for Sustainable Development" 2018-2028 in Dushanbe. In the framework of the project "Women, water management and conflict prevention", OCEEA also supported several representatives from the region to take part in the Central Asian Citizens Forum towards World Water Forum.

Source: Office of the Co-ordinator of OSCE Economic and Environmental Activities

8.6. Switzerland (SDC and SECO)



Schweizerische Eidgenossenschaft Confédération suisse Confederazione Svizzera Confederaziun svizra

Swiss Agency for Development and Cooperation SDC

State Secretariat for Economic Affairs SECO

The <u>Swiss Cooperation Strategy for Central Asia</u> (2017-2021) features a special focus on water, infrastructure and climate change, aiming at (i) supporting Central Asian States in their efforts to provide the necessary framework that allow a joint and equitable management of regional shared waters and (ii) enhancing equitable access to and use of well-managed water resources for households, agriculture and other economic sectors in a changing climate.

The strategy is implemented by the two operational arms of Switzerland's International Cooperation, the Swiss Agency for Development and Cooperation (SDC) under the Federal Department of Foreign Affairs and the Swiss State Secretariat for Economic Cooperation (SECO) under the Federal Department of Economic Affairs, Education and Research.

Apart from its national program in the Kyrgyz Republic, Tajikistan and Uzbekistan with focus on National Water Resources Management, Water Supply and Sanitation and Disaster Risk Reduction/Climate Change Adaptation, Switzerland is also active on the transboundary and regional level, including through its program on water and peace, the Blue Peace Central Asia initiative.

Under this initiative, multiple exchanges between delegations of Central Asian countries have been organized, including a peer-to-peer exchange of experience on Integrated Water

Resource Management in <u>Senegal</u> and a <u>roundtable exchange on water and peace</u> convened by Kazakhstan at the Astana Economic Forum. Additionally, Blue Peace Central Asia supported various other exchanges between country representatives, including the support to Central Asian youth on the preparatory workshop for the 8th World Water Forum, a bilateral exchange between Uzbekistan and Tajikistan representatives on Disaster Risk Reduction around Lake Sarez and multiple inputs at the international water conference in Dushanbe.

Switzerland further contributes to the <u>Central Asia Energy Water Development Program (CAEWDP)</u>, a multi-donor trust funded program management by the World Bank.

It aims at strengthening the enabling environment to promote energy and water security at regional level and in the beneficiary countries.

The Program supports national as well as cross-border activities. National activities, such as institutional strengthening and efficiency improvements, contribute to and present fundamental building blocks to strengthen national capacity to achieve energy and water security, sustainable development and climate resilience at the regional level.

Furthermore and as regards regional or cross-border operational activities, in 2018, Switzerland continued its support to the Chu-Talas river basins on the automatization of water accounting as well as on improving glacier monitoring in Central Asia.

Source: Swiss Agency for Development and Cooperation

8.7. United States Agency for International Development



The United States Agency for International Development (USAID) works across the whole Central Asian region to transform water sharing problems into cooperation that would lead to better and equitable water management.

USAID officially launched a <u>new five-year project</u>, the Agribusiness Competitiveness Activity in Bokhtar City (Tajikistan). The project will work to enhance the competitiveness of Tajikistan's agricultural sector, especially in dairy and horticulture, to stimulate economic growth, increase employment and improve livelihoods for farmers

By providing a wide range of support in these sectors, USAID will partner with farmers

and entrepreneurs to improve efficiency by introducing better technologies, management practices, and market linkages in order to help Tajik agribusinesses compete in both domestic and international markets.

The United States Government, through USAID, in partnership with the Ministry of Agriculture launched a <u>demonstration apple orchard</u> at the Ministry's Agroinnovation Center. The Center serves as a research and training hub for horticulture experts across Uzbekistan to share best practices in innovative approaches to production, storage and processing of fruits and vegetables. USAID, the Korean International Cooperation Agency (KOICA), and Korea Rural Community Corporation cooperated to establish the center. USAID provided high-yielding, high-value apple sap-

lings such as Golden Delicious, Star Crimson, and Saltanat that have a high market demand.

The United States Government, in partnership with the Government of Uzbekistan, launched Power the Future (PtF) program that is helping Central Asian countries accelerate the adoption of clean, efficient, cost effective renewable energy. The program provides assistance to national governments and coordinates closely with donors and other key stakeholders to address the policy, regulatory, technical and financial barriers to scaling up and improving the climate for investment in clean energy across the region

Source: United States Agency for International Development

8.8. World Bank



Central Asia Energy and Water Development Program

In 2018, the third phase of the Central Asia Energy-Water Development Program (CAEWDP) was implemented. Third phase contributors include SECO and the EU for a total program budget of \$12.7 million. Under the program, several activities were launched, including the Facilitation of the Regional Dialogue. This activity contributes to building a regional vision for energy and water in the Central Asia region focusing on regional institutions and coordination among partners. The Central Asia Water Partners Coordination Meetings, launched in 2017 together with SDC, is a mechanism gathering water partners to discuss their respective activities on ranging key regional issues (e.g. climate and water coordination, water quality, coordination with EU activities, IFAS support coordination, Regional Environment Action Plan for Sustainable Development, etc.). In 2018, about 8 meetings were organized and cohosted by various development partners (e.g. GIZ, SDC, UNESCO, EU, UNRCCA)

On December 5-6, the CAEWDP Central Asia Knowledge Network (CAKN) hosted a workshop to evaluate the results of the ongoing national assessments of water management academic curricula. The workshop brought together representatives from Kazakhstan, Kyrgyz Republic, Tajikistan, and Uzbekistan in Almaty to share lesson plans and course materials. Participants collectively concluded that Central Asian academic institutions significantly differ in their training programs and agreed that it is necessary to increase experience, curricula, and teaching materials exchange and provide contemporary training materials for the instructors and their students.

The national assessments of water management curricula are undertaken in parallel with the World Bank's initiative, implemented by the Kazakh-German University, to map water, energy, and academic knowledge sharing activities. The final results of both assessments will provide recommendations to enhance water management curricula in Central Asian universities. Academics and water practitioners will meet up for the next evaluation and discussion session in April 2019, during the Central Asia Climate Forum.

On June 12, the CAEWDP organized the first Table Discussion Series, introducing the experience of South Africa in managing water and other natural resources. The videoconference was public and connecting the 5 Central Asia countries and Afghanistan. Representatives from the Water Research Commission and the Roadmap for Water Research, Development and Innovation shared their knowledge on cooperative management of limited transboundary water resources, critical for national and regional water security in the current water scarcity context of South Africa.

Climate Adaptation and Mitigation Project for the Aral Sea Basin (CAMP4ASB)

On January 24-25, the Central Asia climate Change Conference was organized in Almaty under the Climate Adaptation and Mitigation Project for the Aral Sea Basin (CAMP4ASB). It brought together more than 250 representatives from governmental and non-governmental agencies, academia, development partners, multi-lateral development banks and civil society involved in climate change adaptation activities. The conference informed about the latest global climate change discussions and trends amid adoption of the Sustainable Development Goals (SDGs) and the post-COP23 discussions relevant for Central Asia countries. It also discussed good practices, lessons learnt and research findings, innovative climate-resilient technologies and climate finance opportunities. Several knowledge products, including reports and thematic webinars, were produced following the event and are available on the following website http://ca-climate.org/eng/.

Furthermore, as part of the project, numerous capacity building activities were launched, with focus on: (i) improving climate change modeling capacities, (ii) assessing snow cover and forecasting seasonal water availability (iii) promoting graduate research on climate change issues in Central Asia and (iv) assisting in updating academic curriculum in universities, etc.

Central Asia Hydromet Modernization Program (CAHMP)

Started in 2011, additional financing of \$11.5 million was approved for CAHMP in August 2018, bringing the total value to \$39.2 million, with the project extended to 2021. CAHMP includes a regional component that engages all five Central Asia countries and is implemented by EC-IFAS through its Regional Center of Hydrology (RCH). It also has national compo-

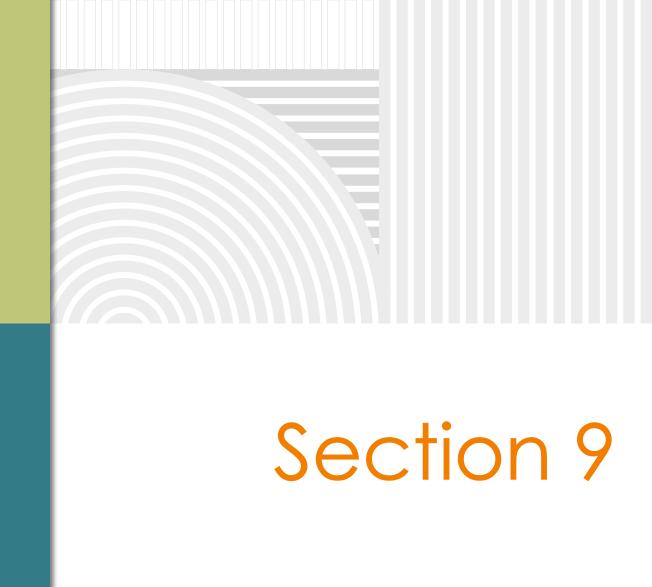
nents in the Kyrgyz Republic and Tajikistan, implemented through the respective National Meteorological and Hydrological Services (NMHSs).

The CAHMP Annual Meeting of Directors of the Central Asian NMHSs took place on January 23, 2018, in Almaty, agreeing on next steps for regional forecasting and data sharing, as well as the activities to be supported by the aforementioned CAHMP additional financing. During 2018, a distance learning system (DLS) with initial nodes in Almaty, Bishkek, Dushanbe and Tashkent was established, allowing for shared interactive trainings through videoconferencing and ICT solutions. Further, a highperformance computer was installed in Uzhydromet, which serves as a Regional Specialized Meteorological Center (RSMC) of the World Meteorological Organization (WMO). The HPC will operate a regional numerical weather prediction model (COSMO-CA) for the benefit of all Central Asian countries.

Under the World Bank technical assistance "Strengthening Early Warning of Mountain Hazards in Central Asia", financed by the Global Facility for Disaster Reduction and Recovery (GFDRR), several regional capacity building events were organized in 2018 for all five Central Asian NMHSs on numerical weather prediction; weather forecastina; flash flood, mudflow and landslide observation and monitoring; snow and avalanche assessment; and GIS. This technical assistance also provided licenses to access the web products of the European Centre for Medium Range Weather Forecasts (ECMWF) to all five Central Asian NMHSs, with ECMWF providing associated training to Kazhydromet and Kyrgyzhydromet. Further, the development of a visual "atlas" of hydrometeorological services to strengthen user engagement and advocacy was initiated, with visits by experts in hydrometeorological communications to all five Central Asian NMHSs.

Source: World Bank





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 <u>Meteorology and Hydrology Department</u> 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 <u>UNESCO Department for Sustainable Development</u> 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 resourcesaving 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 <u>leader among higher education institutions in Kazakhstan.</u>

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 <u>Eurasian Summit on Higher Education</u> (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 <u>COMSATS Centre</u> 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 agroindustrial 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 <u>Summer School</u> 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 Kazyuzhgiprovodkhoz.

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 Univesity named after K.I. Skryabin, All-Russia Research Institute of Hydraulic Engineering and Land Reclamation (VNIIGIM), 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 Agrotechnology Department. In the academic year 2018-2019, 264 students study at the department.

Major Events in 2018

According to the results of the <u>national rating of the educational programs</u> 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 <u>best universities in Kazakhstan 2018</u> 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 <u>Natural Resource Institute</u> 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:

<u>training for civil servants</u> "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 <u>Climate and Water Law</u> and <u>Governance in Central Asia and</u> <u>Afghanistan for young civil servants</u> (24-26 September, Almaty);
- International Workshop "Prospects for the Development of Green Energy in the Aral Sea Basin" (28-29 November, Kyzyl-Orda).

GKU:

- 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 (1-21August). 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).

GKU students participated in the <u>Summer school</u> on "The basics of water management: integration of theory, practice and scientific research" (4-20 June, TIIAME).

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

Sources: GKU, https://dku.kz/, https://dku.kz/, https://dku.kz/,

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 NII:

- 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 scien-

tific 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 Environ-mental 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 retraining 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 <u>study tour</u> 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 <u>Edu Workshop</u> "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 <u>International</u>

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 HEIs 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 4^{th} of

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

The <u>University is comprised</u> 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 <u>Environmental Management and Sustainable Development program</u>. 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 ecofriendly!" among students and school-children (17 October);
- "Go Green AUCA!" <u>campaign</u> 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 <u>Tajik Agrarian University named after Shirinsho Shotemur</u> (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 Shahristan districts.

TAU prepares water specialists at the <u>Hydromelioration Faculty</u> 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 <u>Center for Advanced Training of Personnel of Agro-Industrial Complex at TAU</u>.

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 <u>summer school</u> 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.ti/en/

9.1.4. Turkmenistan

Turkmen Agricultural University named after S.A.Niyazov

The Agricultural Institute founded in 1930 was renamed 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 <u>student essay contest</u> "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 distinct, Ahalprovince) 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 <u>student essay</u> <u>contest</u> "Women. Agriculture. Adaptation to climate change" (14 June, Ashgabat).

The TAI lecturers took part in:

- Scientific and Practical <u>Conference</u>
 "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: <u>www.science.gov.tm</u> (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 TIIAME, International House Tashkent Lyceum at TIIAME), Innovation and Research Cluster on Water Resource Management, Center for Advanced Training and Retraining of Pedagoaical Staff, Research Institute of Agricultural Mechanization, State Unitary Enterprise "Training and Research Center" of TIIAME 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 TIIAME, 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: <u>seminar</u> "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) <u>project</u> 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".

TIIAME hosted:

- a <u>summer school</u> on the theme "Basics of water management: integration of theory, practice and research" (4-20 June);
- a <u>Round Table</u> "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 <u>International Conference</u> "Social science knowledge and sustainable agricultural development along the Silk Road" (30 October-2 November);

- UNESCO <u>Regional Training Workshop</u> 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 TIIAME, 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 multistakeholder processes (13-15 December, Kunming, China);
- developed a web-site of the ICWC Training Center (<u>www.cawater-info.net/training/</u>), 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 <u>Education</u>, 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' <u>Summer School</u> (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 <u>letter of intent</u>, 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: <u>www.ucentralasia.org/Home/Index/RU</u>, <u>www.ucentralasia.org/Research/MSRI/RU</u>

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, TIIAME Workshop on module design training and capacity-building program
- **14-16 March**, Andizhan, Namangan, Fergana UNDP trainings on implementation of GLOBALG.A.Pinternationalstandard
- **24-25 April**, Tashkent Regional training on "Institutional framework for the implementation of IWRM principles in the field: Basin Councils"

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 <u>Regional Training Workshop</u> 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 (22-31October);
- 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).

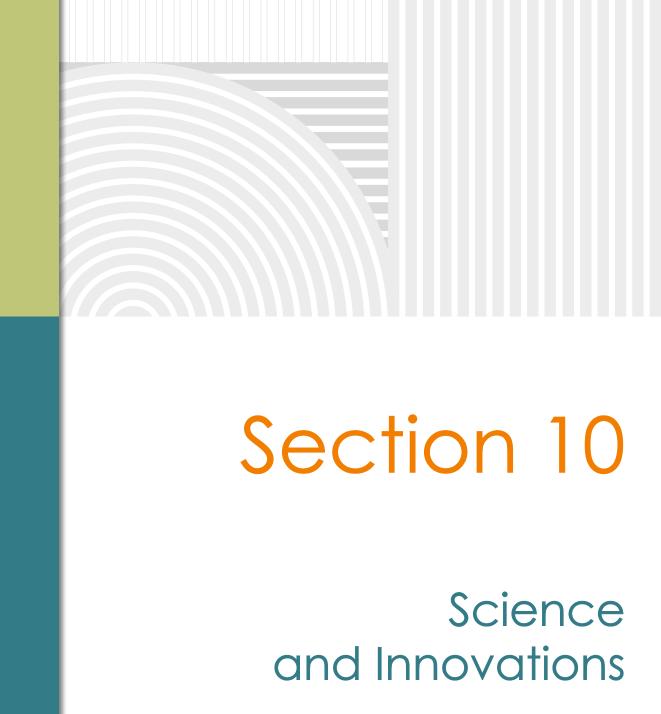
9.3.2. Professional Development Courses and Trainings in 2019

- **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.







10.1. Innovations in 2018

Drones and Robots in Agriculture

AgResearch, one of the largest research institutes in New Zealand, has started exploring the possibility of using drones with lasers for weed control. The idea is to mount specialist cameras on the drone or UAV (Unmanned Aerial Vehicle) that can first identify the weeds based on their unique chemical signatures and how they reflect light. The weed's locations will be mapped using GPS and the drone would then identify and eradicate the pest plant using a laser.

Tactical Robotics Ltd. announced the launch of development of an agricultural use derivative of its **Cormorant Unmanned Aerial Vehicle** (UAV). <u>Cormorant</u> has completed 250 successful flights. Focused pesticide spraying ensures maximum crop coverage. It operates almost silently, making it possible to work at night without disturbing neighboring farms.

A group of scientists from the UK is conducting a research, where energy-powered drones help farmers sow, treat soil, monitor crops and harvest. As part of the research, the field was sown with barley by means of drones; special drones monitored conditions of plants, treated them and delivered samples of plants to the farmer so that he could determine their status and the time when harvesting should begin. Self-driving combines were used for harvesting.

Panasonic unveils autonomous <u>tomato</u> <u>picker</u> in Tokyo. Panasonic's new robot relies on a combination of camera, range image sensor and artificial intelligence technologies. First, it recognizes which tomatoes are ready to be picked. Then, it performs a precise cut-and-catch technique to move each tomato from vine to bucket.

Innovations in Greenhouses

Fifth-generation greenhouses allow supporting a microclimate and an illumination mode, which is optimal not only for plant development but also for personnel. Heat re-use significantly reduces energy costs, while excessive internal pressure prevents from insect pests.

China is making its vegetables grow bigger, faster and stronger <u>using electricity</u>. The Chinese Academy of Agricultural Sciences and other

government research institutes released the findings of nearly three decades of study in areas with different climate, soil conditions and plantation habits. The technique has boosted vegetable output by 20 to 30 per cent. Pesticide use has decreased 70 to 100 per cent. And fertilizer consumption has dropped more than 20 per cent. The vegetables grow under bare copper wires, set about three meters (10 feet) above ground level and stretching end to end under the greenhouse roof. The wires are capable of generating rapid, positive charges as high as 50,000 volts, or more than 400 times the standard residential voltage in the US. The high frequency electricity kills bacteria and virus-transmitting diseases in the air or soil. It also suppresses the surface tension of water on leaves, accelerating vaporization. Within the plants, the transport of naturally charged particles, such as bicarbonate and calcium ions, speed up and metabolic activities, like carbon dioxide absorption and photosynthesis, also increase.

The Aisheng Biotechnology Company has presented its <u>fully-automatic aeroponic plantation system</u>, which functions in an isolated room without soil, pollution sources, or insect pests. The production includes more than 70 varieties of such vegetables and fruits. The plantation installation produces agricultural crops year-round through an efficient, precise, and strictly controlled system. The first "aeroponic" plantation installation was presented in Shanghai.

In Kostanay province of Kazakhstan, the first thermal greenhouse was built by Zh. Abishev, resident of Kostanay district. The 'greenhouse-thermos' is more economically viable than traditional ones: there is only a roof on the surface and beds are under the ground. Tomato, radish and herbs have already been planted here.

Singapore announced the development of an 8-greenhouse <u>rooftop farm</u> to provide pesticide-free, sustainable food to this Island Nation. This rooftop farming complex will consist of 8 rooftop greenhouses. The first farm (phase 1) will be 6,930 square feet, capable of producing over 332,000 plants (approx. 90,000 pounds of fresh food) per year. The entire project, when complete, will total over 35,000 square feet.

Hydroponics will be the primary growing method, due to a lack of fertile soil in urban

areas. Circular processes like the harvest of rainwater and solar power and reuse of industrial CO₂ are examples of sustainable proven technologies that will be included in the overall design of the urban farm.

Called the World Food Building, the project is currently under construction in the **Swedish town of Linköping** and is due to be completed in 2020. The tower will operate based on hydroponics, which means that the vegetables (mainly green vegetables) grow without soil in a water-based solution enriched with nutrients. The crops will grow using both natural light and LEDs. Except that the LEDs will be calibrated to specific frequencies of light to maximize production. According to his projections, the tower will also save a total of 1,100 tons of CO₂ emissions and 13 million liters of water per year.

The energy efficiency of <u>vertical farms</u> could soon be boosted by as much as 20 per cent, thanks to a new system developed by a **student from Brunel University London**. vFarm, by design student Jonny Reader, 21, uses OLEDs – organic light-emitting diodes – and smart automation to significantly reduce the amount of power used in vertical farming. vFarm also aims to increase efficiency and yield through the use of automation, using a series of sensors to help control factors such as temperature and humidity. It can read the current temperature, how much water there is in the reservoir, light intensity and how much power it's drawing.

The staff and students of the Don State Technical University have developed an installation that creates optimal conditions for rapid seed germination, allowing for stronger and viable plants. The new installation simulates seed germination conditions thanks to the LED matrixes with different light spectra. Lighting conditions vary depending to key parameters: temperature, humidity and duration of exposure. Such intensified seed preparation will substantially reduce the vegetation period and help use greenhouse areas as efficiently as possible.

The Dutch tomato grower <u>Rimato</u> is growing honey tomatoes on 14.6 hectare in Honselersdijk, and is officially a 'zero-waster': water that is not used by the plants is collected in gutters and reused. Tomato plants are grown on rock wool mats, wrapped in plastic. At the beginning of a new growth, they are filled with water. After a few weeks the roots need air: the water that is not used has to be drained quickly. The growers make small holes in the plastic. The water is drained more evenly into the gutters,

and they prevent overflowing. The gutter transports the water to large silos. UV light and a special filter is used to remove dirt and any diseases from the water. This 'drain water' is then mixed with rainwater, which we collect in three rainwater basins totaling 32,000 m³. It is then returned to the plant with the right recipe of fertilizers. The gutters with rock wool mats are not attached to the ground: in this way the grower can closely monitor if there is any leakage. One time a year, all plants and rock wool mats are replaced. To prevent waste of water in the end phase, it is essential to remove these as dry as possible. Shortly before the end, the growers are already reducing irrigation.

Monitoring of Agricultural Processes

The South Korean system allows controlling crop growing remotely with the help of a smartphone. The system involves installation of dozens of automated sensors to measure wind direction and speed, temperature and humidity in an indoor environment and in the soil, solar radiation, rainfall, carbon dioxide, light and soil acidity. In addition to the sensors in the greenhouse, an advanced controller is needed to collect the data from sensors and transmit them to mobile phones or personal computers via the Internet. With the help of a special application, it is possible to remotely adjust the automatic water delivery, open or close ceiling of the greenhouse for sunlight and maintain the temperature inside the greenhouse. The system can be installed at different scales and can operate in any climatic conditions. Moreover, it is cheap and easy to install.

Bees with mini sensor backpacks might help farmers monitor crops in the future. The University of Washington engineers have developed a sensing system that's small enough to place on bees. Because bees can fly on their own, each sensor only requires a tiny rechargeable battery that could last for seven hours of flight. Plus, the tiny sensors would charge when the bees are in their hive at night. Unlike drones and other flying objects, bees don't need to be charged and the tiny sensors would allow them to collect data for hours at a time. The example backpacks can only store about 30Kb of data, limiting them to collecting basic info like humidity, light and temperature.

The lowa State University scientists developed a graphene-based, sensors-on-tape that can be attached to plants and can provide data to researchers and farmers about water use in crops. The technology could have many other applications, including sensors for

biomedical diagnostics, for checking the structural integrity of buildings, for monitoring the environment and, with modifications, for testing crops for diseases or pesticides. The graphene-on-tape technology in this study has also been used to produce wearable strain and pressure sensors, including sensors built into a "smart glove" that measures hand movements. The plant sensors are so tiny they can detect transpiration from plants, but they won't affect plant growth or crop production. The technology could "open a new route" for a wide variety of applications, the authors wrote in their paper, including sensors for biomedical diagnostics, for checking the structural integrity of buildings, for monitoring the environment and, after appropriate modifications, for testing crops for diseases or pesticides.

A team of University of Minnesota researchers led by Alex Susko developed the system to capture videos of plant movement under very windy conditions as well as stem failure or lodging. Lodging occurs when a plant falls or bends over due to high winds, disease, wet soil, excess nitrogen in the soil, machinery, or animals and can lead to losses in crop yield. The U of M camera-tracking upgrade allows researchers to record real-time plant traits at different locations in the experimental field. The camera track system is made of commercial hardware and electronics accommodating 360-degree cameras. It can be adapted to various field dimensions, crops, and sensor systems to get high throughput phenotypic data unmeasurable by other systems.

More than 100 installations with IoT sensors monitor the condition of fields in 24 countries in Europe and South America. Each product is inserted into the soil, leverages a SIM card that works anywhere in the world and takes measurements from the soil providing real-time data to growers, farmers, and farming businesses of both small and large scale. The measurements include soil moisture of soil at different depths, soil temperature, air temperature and humidity, soil radiation, rain intensity and beyond. It is able to predict irrigation by providing information on how much water is in the soil. This saves 50-60 % more water and thus snowballs in saving electricity, resource usage (such as pesticides and fertilizers), and reduces the likelihood of devastating fungi that can result from miscalculated water irrigation.

Increased Yields, Reduced Pesticides and Pest Control

Bacteria-based agriculture is starting to become big business.

Indigo startup helps farmers improve the health and productivity of their crops with microbial products that protect against the environment, disease and pest stress. Now, the company is expanding its suite of digital tools with the launch of Indigo Marketplace, a digital market that directly connects farmers and buyers. Using Indigo Marketplace, buyers can purchase grain directly from farmers. They can filter by protein content, milling quality or by production practices, i.e. whether it's organic or not. Growers are paid based on the quality of their crop, which is determined by a sample sent to a third-party lab for analysis. Indigo manages the testing, transportation of the crop and payment through its new platform.

Kazakhstani scientists propose using living organisms (entomophages) for destruction of pests. They offer such insects as aphidius, oriuse, macrolophus, etc. as entomophages for greenhouses. This biological protection of plants is much better than chemicals.

Agricultural Research Service (ARS) scientists in Albany, California have found a way to streamline the process that scientists use to insert multiple genes into a crop plant, developing a reliable method that will make it easier to breed a variety of crops with vastly improved traits. The technology is expected to speed up the process for developing new varieties of potatoes, rice, citrus and other crops that are better equipped to tolerate heat and drought, produce higher yields and resist a myriad of diseases and pests. Crops with greater resistance to pathogens and insects could greatly reduce pesticide use and prevent billions of dollars in crop losses.

Researchers at the University of Oxford and the Chinese Academy of Sciences have discovered a <u>new gene</u> that improves the yield and fertilizer use efficiency of cereal crops such as wheat and rice. The discovered gene variant increases the amount in plant cells of a protein called GRF4. GRF4 is a 'gene transcription factor' that stimulates the activity of other genes – genes that themselves promote nitrogen uptake and assimilation.

A3TECH Ukraine presented a brand-new fire-powered cultivator at the AGRO-2018 Exhibition. This machine may save 80 % of costs for plant protection agents and especially will be useful for organic growers. The inventors use liquefied propane-butane, which is evaporated in the burner developed by the company and released from nozzles under pressure. Such a design allowed getting a "rigid" torch with

temperature control limits of 1 100-1 800° C. This range of temperature resists all possible weather patterns (dew, wind up to 6-8 m/s, wet soil after precipitation, as well as the densest weeds). When the cultivator moves, the flame reaches the weed only within a fraction of a second. The growth point of weeds is destroyed. The firepowered cultivator provides for three types of treatment: pre-seeding, pre-emergence, and final.

Combating Desertification and Climate Change

After successfully cultivating grapes in the desert, **China** is combating desertification by adopting advanced scientific methods to boost sustainable farming in the region, a senior official maintained. Trials for reviving algae, moss, and lichen are underway in an attempt to control the spread of desert terrain and also boost agriculture in the Tengger desert at Shapotou district in Ningxia Hui Autonomous Region. Shapotou alone cultivates ground 350 hectares worth of grapes. Nearby Zhongwei City, which is facing the worst impacts of desertification, is growing grapes in approximately 600 hectares of land. Corn and wheat crops are cultivated on a rotational basis to maintain the soil's fertility.

Jackson Family Wines is running a five-year experiment to try to increase the carbon held in its soils. The company "wanted to participate in research to determine whether a working vineyard can in fact serve as an active carbon sink" to absorb carbon dioxide from the atmosphere. Farmers can address climate change by producing smaller amounts of greenhouse gases, but also through practices known as carbon farming or "sequestration." The terms basically involve agricultural practices that remove carbon dioxide from the atmosphere and hold it in the soil.

Water Conservation

Buried clay pot irrigation is applied at the small family farm Urban HomeStead in California on a 4-acres plot. According to the farmers, such irrigation technique is 80 % more efficient than drip irrigation. Water directly penetrates the clay, giving the plants the moisture they need.

According to FAO, some integrated agriaquaculture farms using aquaponics technology can reduce water consumption by 90 % compared to purely traditional agricultural farms, with combination of new technologies and good practices to reduce agriculture's "waterprint" and make smart and efficient use of natural resources. In aquaponics, water serves a dual purpose: hosting fish and growing crops, generating two products at once. This isn't the only benefit; the waste from the fish fertilizes the water used to irrigate the plants, and the plants clean the water for the fish. It is a win-win situation. Production of more food with fewer resources: this is part of the future of agriculture.

Tree Hog can cut an orchard's water consumption by up to 70 %, with minimum savings starting at 50 %, says its inventor Louis Loubser, a farmer in Robertson in the Western Cape. The device is an injection-moulded plastic case with a micro sprinkler which encloses the base of a tree. It combines the benefits of micro and drip irrigation and long hours of irrigating turn into roughly twenty minutes. Because Three Hog encloses the base of a tree, it drastically reduces typical evaporation, and keeps the soil temperature constant helping a young tree's development. Unlike conventional drip irrigation systems, Tree Hog wets a much larger area at the base of a tree, helping the tree develop a strong root system. It also reduces the need for weeding around young trees.

Kyrayz scientists have patented a watermeasuring structure comprised of diversion and discharge channels, measuring site, a diaphragm with a rectangular orifice at the bottom, a right angle plate vertically movable between the walls of the rectangular pressure channel, and a level gage. There is also a short open rectangular channel, parameters of which correspond to those of the pressure channel. The level gage is installed in the short channel. The bottom of the control section is higher than the bottom of flume by the height of threshold of the control section; moreover, the tail of the control section has the sloping bottom to connect the bottom of pressure channel with the discharge site of flume.

The Zhaushykum village (Shardara district, South Kazakhstan province) apply innovative methods in growing onions: the seeds are sown in shredded soil every 3 cm, with buried drip irrigation tubes. Thanks to high quality seeds of the Dutch onion and even seeding, the yields are high. Application of the new technology contributes to 5 times reduced inputs by and increased productivity.

Scientists of the Department of Plant and Soil Sciences, University of Delaware, determined that <u>Bacillus subtilis</u> (Ud1022), which live on the

surface of roots and in the surrounding soil, trigger pore-like openings on the leaves, called stomata, to shut tight to keep pathogens out and to protect the plants from dehydrating. The research conducted jointly with the National Institute of Standards and Technology (NIST) confirms that the beneficial microbe UD1022 reduces evaporation and increases the soil's ability to hold water. Using state-of-the-art techniques, the study provides detailed analyses of how microbes interact with soil particles to physically change the underground ecosystem and help plants tolerate drought.

The research, from an international team of scientists led by the University of Illinois, discovered that a specific protein called Photosystem II Subunit S (PsbS) can be increased to force a plant to partially close its stomata. The stomata, tiny pores in a leaf, open and close to either let carbon dioxide in or oxygen out, regulating the process of photosynthesis. The initial hypothesis was that by limiting the stomata opening a plant would not lose as much water through transpiration, and subsequently not need as much water to grow. By increasing PsbS expression stomatal openings were reduced, and the ratio of carbon dioxide going into a plant to water escaping improved by 25 percent. This effectively meant the plant would need 25 percent less water to achieve the same rate of photosynthesis. The experiment with tobacco crop showed no significant difference in overall yield or size between modified and nonmodified plants. Increased PsbS expression allows crop plants to be more conservative with water use, which we think will help to better distribute available water resources over the duration of the growing season and keep the crop more productive during dry spells.

Andros Engineering, the California based **company** that manufactures the single use drip tape recycling system, has partnered with RDO Water to expand on their current offering. The company supplies the machinery to collect the drip tape and haul it off for recycling. Using tractors with specially-designed lift bars, RDO Water's team lifts the drip tape at the end of the season. The RDO Water crew then uses the Andros Engineering Mega-Binder to roll up the tape, efficiently and neatly. The service includes haul-away and recycling of the tape, too growers no longer need to store and repair the tape for use the following season, or coordinate disposal. Additional benefits of single-use drip tape include reduced water use for flushing and leaks, improved food safety, and eliminating off-season drip tape storage.

Wastewater Treatment, Desalination, and Improved Water Quality

A team of engineers from the Department of **Energy of Politecnico di Torino (Italy)** has devised a new <u>prototype to desalinate</u> seawater in a sustainable and low-cost way, using solar energy more efficiently. The working principle of the proposed technology is very simple: a special floating device is able to collect seawater using a low-cost porous material, thus avoiding the use of expensive and cumbersome pumps. The collected seawater is then heated up by solar energy, which sustains the separation of salt from the evaporating water. This process can be facilitated by membranes inserted between contaminated and drinking water to avoid their mixing. The developed technology is in fact able to double the amount of water produced at given solar energy.

The Siberian Federal University scientists developed a river cleaning biosorbent based on raw materials derived from Siberian Larch (Larixsibirica). The chemical modification of natural matrix allows us to produce a watersoluble material (sulfated arabinogalactan) for creating polyelectrolyte complex that cleanses the pollutants and helps the disposal of wood processing industry products. In addition to raw materials of vegetable origin the biosorbent will also include a component of animal origin – chitosan. The new material can be efficiently used in sewage treatment filters and can be recommended for major production facilities use.

Engineers from Tomsk Polytechnic University developed an unusual and inexpensive technology of water treatment. The innovative technology will allow cleaning contaminated drinking and waste water from toxic, chemical substances, including combustible impurities and salts. This technology makes it possible to purify water qualitatively and cheaply. The explosive cleaning method is simple: water is converted into emulsion or suspension by adding insoluble liquids or solid impurities, and then placed in a heating chamber where it is heated to 300-500 degrees. Explosive destruction of interphase boundaries is caused precisely by the pressure drop, and the process itself acquires a chain character. Water evaporates, non-combustible mixtures precipitate, and combustible mixtures burn out. Then the steam condenses, at the output we get purified water.

Researchers at the University of Alabama in Huntsville have been studying a new type of plasma generator for water purification. The new generator pulses voltage signals to ionize gas at atmospheric pressure and produce many useful byproducts, including hydroxyl radicals, which cause a cascade of reactions that lead to purer water samples. The plasma and ensuing chemical reactions release energy and chemical species that can kill even though microcystin bacteria, one culprit in algal blooms. The end goal is to develop something that can be mass-produced and distributed to places that need it the most.

Nano Sun, a water technology start-up founded by a scientist from Nanyang Technological University, Singapore (NTU Singapore), has launched a 3D printing plant to manufacture a new type of water treatment membrane. Nano Sun 3D prints millions of nanofibers layered on top of each other, compressed into a thin membrane. This gives the membrane a much bigger surface area to trap or repel pollutants while allowing water molecules to pass through at a faster flow rate.

The French company Marine Tech offers a technologically simple device in terms of production and operation. This device is able not only to purify water unsuitable for drinking but also to disinfect it. The transparent ball, one meter in diameter and made of durable heatresistant material, is able to generate clean water in any point in the world with hot climate and lakes and seas. Seawater is filled into a special container in the sphere. Evaporation occurs under the sunlight and the condensed water appears on the walls and flows down the special tubes. The collected clean water may be delivered to consumers.

A new surface-active substance has been developed; the substance gives ordinary irrigation water the properties of rainwater, which is much more useful for irrigation of fields. The substance reduces pH level of irrigation water, making nutrients more accessible to plants and increasing efficiency of chemicals and fertilizers sprayed over the surface of plants. Inventors assure that such adjuvant is much more effective than other salt-based analogues designed for control of pH level.

Alternative Energy

Researchers at the University of California, Los Angeles (UCLA) have developed a doublelayer solar cell that generates more energy from sunlight than typical solar panels. The device is made by spraying a thin layer of perovskite—an inexpensive compound of lead and iodine that has been shown to be very efficient at capturing energy from sunlight — on to a commercially available solar cell. The solar cell that forms the bottom layer of the device is made of a compound of copper, indium, gallium and selenide, or CIGS. In tests, the cell was able to convert 22.4 per cent of the incoming energy from the sun, a record in power conversion efficiency for a perovskite-CIGS tandem solar cell. The development has proven to be the most efficient of all the solar panels currently available.

Scientists at the Faculty of Physics and Information Technologies of the Gomel State University are developing new luminescent coatings for solar panels using the sol-gel method. This invention will be useful for the energy sector as it will increase the efficiency and service life of solar panels.

Researchers of the University of British Columbia (UBC) have found a cheap, sustainable way to build a solar cell using bacteria that convert light to energy. They genetically engineered E. coli bacteria that use dye to convert light into energy in order to create a socalled "biogenic" solar cell (a cell made of living organisms). That dye is very good at gathering sunrays and converting them into energy. The researchers coated the bacteria with a mineral to act as a semiconductor and applied the mixture to a glass surface. Solar powers of the near future could operate at far higher efficiency in cloudy regions.

Scientists from the University of Exeter have developed a method that has the potential to harvest three times more photovoltaic (PV) energy compared with traditional systems by funnelling the energy more efficiently. The technique "funnels" the sun's energy directly into power cells, such as solar panels or batteries. The idea is similar to pouring a liquid into a container, as we all know it is much more efficient if we use a funnel. They used the atomically thin semiconductor hafnium disulphide (HfS₂), oxidized with a high-intensity UV laser, to engineer an electric field that funnels electrical charges to a specific area of the chip, where they can be more easily extracted. While current solar cells are able to convert into electricity around 20 per cent of the energy received from the Sun, the new technique has the potential to convert around 60 per cent of it by funnelling the energy more efficiently.

Meeting our growing energy demands without continuing to destroy the planet might be one of the biggest challenges of our time, and it calls for some pretty creative solutions. Swiss company Energy Vault has just launched an <u>innovative new system</u> that stores potential energy in a huge tower of concrete blocks, which can be "dropped" by a crane to harvest the kinetic energy. Unlike dams, the new solution doesn't require water. When a wind or solar farm makes more energy than the grid needs, an automatic crane on the battery uses the extra electricity to lift a giant brick, weighing 35 metric tons, up to the top of the tower. When that tower's stacked, that's all potential energy. When the grid needs power, the crane automatically lowers a brick, using the kinetic energy to charge a generator. Indian utility Tata Power, Energy Vault's first announced customer, will be installing one of the towers later this year.

Japanese company Ibasei Ltd. developed a <u>small hydro-kinetic power generator</u> Cappa. There is no need to build a dam with Cappa compact hydropower generator – a system that's designed to be installed along a river or waterway. The basic design of the Cappa is nothing new – blades rotate as the water flows through the unit, which drives a turbine to generate electricity. However, the unit is encased in a special diffuser that is designed to increase the velocity of the water at the point where it passes over the blades, thereby increasing the unit's electrical output. The unit produces 100 V AC electricity at 50/60 Hz, so it can be used to power appliances around the (Japanese) home. The unit itself is also 100 percent recyclable and has an uptime of virtually 100 percent.

The **South Australia Labor government** has unveiled plans to build a 250MW "<u>virtual power plant</u>", linking household rooftop solar and battery storage, in what it says will be the world's biggest. The project will ultimately bring together 250MW of capacity and 650 MWh of storage, allowing the combined resource to be pooled to help provide grid stability and extra capacity when supply is short.

Atmospheric Water Generator

A team of scientists from the Massachusetts Institute of Technology developed a device that can extract potable water from even the driest of desert air. The researchers say the system based on metal-organic frameworks (MOFs) may operate with relative humidities as

low as 10 percent. Its output would be equivalent to more than a quarter-liter of water per day per kilogram of MOF.

Scientists from the University of California, Berkeley have developed a device that can harvest fresh water out of the air. The device is made of MOF that's housed within a clear plastic box. In simple terms, water vapor from the atmosphere condenses on the MOF material, which absorbs it like a sponge. As the water evaporates, it gets trapped and collected by the device. The MOF material is made up of metal- and carbon-based organic molecules, and is designed to have many tiny pockets of air between the different types of molecules. The problem with the UC Berkeley scientists' new technology, however, is that it's expensive to produce. The MOF used in this test was made from zirconium, a costly metal. However, the team is working to develop MOFs out of aluminum, which is cheaper to produce and can actually absorb more water.

China is engineering the biggest project yet to force rainfall. The country plans to build tens of thousands of combustion chambers on steep Tibetan mountainsides. The chambers would burn a solid fuel, which would result in a spray of silver iodide billowing towards the sky. The particles, much like those already sprayed from planes, would provide something for passing water vapor to condense around, forming clouds. And the clouds would bring the rain. It is intended to force rainfall and snow over 1.6 million square kilometers. The system was developed by the state-owned China Aerospace Science and Technology Corporation.

Application of space technologies

A team of scientists from the Arizona State University (ASU) and the Jet Propulsion Laboratory (JPL) are using the latest space technology to look underneath Earth's surface to measure this precious natural resource. They've focused their efforts on one of the world's largest aguifer systems, located in California's Central Valley, measuring both its groundwater volume and its storage capacity. They measured land subsidence (when land above and around an aquifer shifts downward) using space-borne Interferometric Synthetic Aperture Radar (InSAR) and added that to data on groundwater levels sampled at thousands of wells across the Central Valley. The team analyzed data from 2007 to 2010 and 2012 to 2016 drought periods. During the 2007 to 2010 drought, up to two percent of storage capacity

was lost entirely when the water level declined and the clay layers in the system were permanently compacted. Now researchers are developing new methods for monitoring groundwater levels using satellite-based measurements of Earth's surface, providing a more comprehensive picture of the health of our nation's groundwater. These studies will enable authorities and decision makers to accurately manage water resources and plan for future water allocations. Water managers need to know about the irreversible processes taking place and how to act to prevent a future crisis

10.2. Online Information Products and Services

10.2.1. An Interactive Map of Best Practices on Water, Land and Energy Use and Environmental Protection in Central Asia

In 2017, an interactive map of best practices on water, land and energy use and environmental protection in Central Asia was developed by SIC ICWC under Project "Promoting dialogue for conflict prevention related to water nexus in Central Asia (CAWECOOP)" implemented by CAREC and financed by European Union. This online resource contains information on successful application of approaches, technology, models, techniques, instruments, and other tools that have proven to be effective in the use of water, land, and energy resources and in the protection of environment in Central Asia.

In 2018, additional 50 IWRM practices were added to the database and interactive map of best practices on water, land and energy use and environmental protection in Central Asia*, including 12 practices for Kazakhstan; 12 practices for Kyrgyzstan; 7 practices for Tajikistan; 6 practices for Turkmenistan; and 13 practices for Uzbekistan (SIC administered population of the database).

The map is available on http://riverbp.net/innovation/map-bestpractices/en/base/index

10.2.2. New Databases and Portals

SERVIR, a joint initiative of the National Aeronautics and Space Administration (NASA) and United States Agency for International Development (USAID), has released a new global geospatial dataset for agriculture and food security around the world. The dataset, called the Evaporative Stress Index (ESI), is available for analysis and download, and produced weekly at 5-km resolution for the entire globe. SERVIR's ESI is capable of giving soil moisture data without using observed rainfall data. The index is based on satellite observations of land surface temperature, which are used to estimate water loss due to evapotranspiration – the loss of water via evaporation from soil and plant surfaces and via transpiration through plant leaves. Variations in land surface temperature enable the ESI to calculate how the current rate of evapotranspiration compares to normal conditions.

To analyze Evaporative Stress Index (ESI) data, a user simply has to go to <u>ClimateSERV.servirglobal.net</u>, choose Get Started, draw a polygon or choose a feature on the map, and then select the ESI as data source.

A new World Water Quality Portal, launched by UNESCO's International Hydrological Program (IHP), provides information on freshwater quality at the global scale using remote sensing data. The Portal addresses an urgent need to enhance the knowledge base and access to information in order to better understand the impacts of climate- and human-induced change on water security. It provides data on five key indicators of the state of water quality: turbidity and sedimentation distribution, chlorophyll-a, Harmful Algal Blooms (HAB), organic absorption and surface temperature. These indicators also provide information on the impact of other sectors

^{*} Interactive map was developed by SIC ICWC upon request of CAREC as part of the Project "Promotion of dialogue for conflict prevention related to water nexus in Central Asia (CAWECOOP)" financed by EU.

and land uses such as urban areas, fertilizer use in agriculture, climate change or dam and reservoir management. The Portal uses optical data from Landsat and Sentinel-2 satellites, which are open access, and a computational system, developed by EOMAP, Germany.

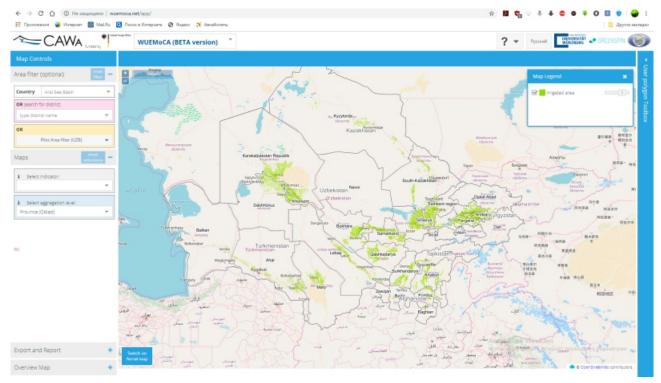
Kazakhstan launches a large-scale project on agrochemical soil analysis – an interactive map of soil conditions over the whole territory of the country (http://www.qoldau.kz/, developer – JSC Information and Accounting Center. With such map it would be easier for farmers to apply for subsidies for fertilizers, set operation-order cards for modern equipment for land treatment and use an "agro-consultant robot".

The website of the Uzbekistan's State Committee for Land Resources, Geodesy, Cartography and State Cadastre informs about the development of a mobile application that provides information about farmlands, including the way fields are used, names of farmers, etc.

A <u>Beta Version v18.12 of the WUEMoCA</u> (Water Use Efficiency Monitor in Central Asia) information tool was launched. It constitutes a continuous and automated monitoring platform that provides free access to spatiotemporal agricultural geoinformation such as land use and crop types, yield estimations, and evapotranspiration assessments. This information is derived from open-source optical satellite

remote sensing MODIS imagery and freely available global climate data. Spatial focus of WUEMoCA lies on the irrigated cropland area in the Aral Sea basin: Uzbekistan, Northern Kazakhstan, Turkmenistan, Tajikistan, Western Kyrgyzstan, and Northern Afghanistan. Predefined key indicators allow for the identification of marginal lands with low productivity, the localization of areas with lowest or highest land use intensity, and for assessments of the water use efficiency. WUEMoCA will contribute to the current database at the scale of the Aral Sea Basin and thus to informed regional decision-making. The tool addresses national governments, regional and transboundary authorities as well as specialists at water management institutions. Potential users also include educational institutions and the scientific community. The tool may be used in study programs on aeoinformation technology and remote sensing, as well as in environmental and ecological research in Central Asia. The tool was developed under the Regional Research Network "Water in Central Asia" (CAWa) by SIC ICWC in cooperation with the SME green spin GmbH in Würzburg (Germany), and the Department of Remote Sensing at the University of Würzburg (Germany).

The <u>IWRM Data Portal</u> provides access to the results of the global baseline reporting on SDG indicator 6.5.1 – Degree of IWRM Implementation. It contains the global assessment results and analysis products, as well as the national



Source: http://wuemoca.net/app/

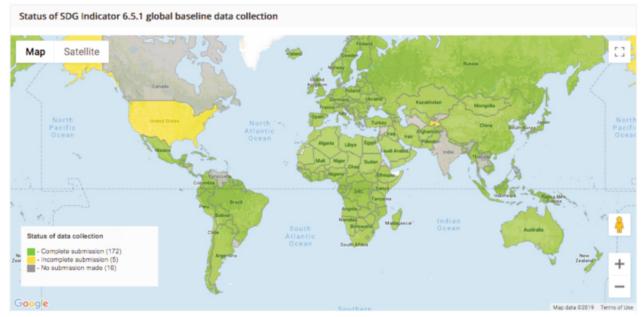
submissions of the 172 reporting countries. The global baseline assessment of SDG Indicator 6.5.1 and its future reporting cycles will help track the global progress towards better management and achievement of SDG 6 target 6.5. In addition, the IWRM Data Portal offers a comprehensive collection of national IWRM implementation progress data drawn from two

previous global IWRM implementation surveys undertaken in 2007 and 2011. While not directly comparable with the SDG indicator 6.5.1, these previous global assessments can help examine the overall progress of IWRM implementation dimensions within the individual countries to date.



Sustainable Development Goal Indicator 6.5.1 on IWRM

Welcome to the SDG Indicator 6.5.1 IWRM monitoring and reporting page. Below you can find all the most relevant information about monitoring of the SDG indicator 6.5.1 on the degree of implementation of Integrated Water Resources Management (IWRM).



Source: http://iwrmdataportal.unepdhi.org/index.html

Uzbekistan launched a mobile application (MA) <u>TOMCHI</u> developed by the National Water Resources Management Project in Uzbekistan funded by SDC. The TOMCHI application is designed for farmers, employees of water management organizations and other water users, including entrepreneurs who produce and install water-saving irrigation technologies. It provides instant access to information on water-saving irrigation technologies and explains their benefits. During the presentation, project specialists noted that the application is compact, broadranging, illustrative, and user-friendly. TOMCHI may calculate the cost of intro-



ducing water-saving technologies, such as drip irrigation, sprinkler irrigation, irrigation using hydrogel, etc. It serves as a unified communication platform for producers and users. It is important to note that the MA will be linked to the knowledge portal of the Ministry of Water Management of Uzbekistan, where compre-

hensive information on water-saving technologies as well as information and data on all aspects of water management will be posted. The TOMCHI app can be downloaded for free from the Apple Store and Google Play

(https://play.google.com/store/apps/details?id).





Key Water Developments

11.1. Africa

In 2018, certain progress was made in talks on the Grand Ethiopian Renaissance Dam on the Nile River, which is the source of tension between Egypt, Sudan, and Ethiopia. It has been gareed that regular tripartite meetings will be conducted between the three countries' ministers, and a tripartite fund will be established, named the "Tripartite Infrastructure Fund". In addition, Egypt, Sudan, and Ethiopia will jointly establish the "National Independent Scientific Research Study Group," which aims to "discuss means of enhancing the levels of understanding and cooperation among the three countries with regard to the GERD." Primarily, this will address the "equitable and reasonable utilization of shared water resources while taking all appropriate measures to prevent the causing of significant harm."

Talks have been held between Egypt, Ethiopia, and Sudan since the construction began, and in recent months have ended in deadlock. Egypt has criticised the dam's construction, which Ethiopia has been undertaking since 2011, arguing that it will reduce the country's access to the river's water - something it considers a historical, leaitimate right. Eavot maintains that any negotiation must guarantee its 66 per cent historical rights with a veto power. Sudan, on the other hand, holds 22 per cent of the water rights, according to the 1959 colonial agreement. Ethiopia, although the source of 86 per cent of the river's water, was excluded from this deal. Both Egypt and Sudan, however, have now expressed their support for the construction, which aims to produce 6,000 megawatts of hydroelectric power - equal to six nuclearpowered plants.

Source:

https://egyptianstreets.com/2018/05/17/breakthrough-for-grand-ethiopian-renaissance-dam-talks/

The Democratic Republic of Congo, DRC and the consortium of China Three Gorges Corporation and Spanish Actividades de Construccion y Servicios SA signed a contract for construction of the Inga III Hydroelectric Dam on River Congo (October 16, 2018). The 11,000-mega-watt Inga III project is worth \$14 billion. Inga III Hydroelectric Dam is a third stage of the multilevel cascade of eight stations Grand Inga, whose generation capacity is estimated at 40 GW, over twice the power generation of the world's largest Chinese Three Gorges Dam. As estimated by the World Energy Council, the total cost of the Grand Inga with all necessary transmission networks will be \$80 billion. (To compare, the estimated cost of the currently most costly hydro-electric project, Three Gorges Dam on the Yangtze River, was \$25 billion). About half of generated power will be exported, while the other half will be used to meet internal needs, including for the national mining sector and population. The project is to increase power generation in DRC 16 times. Currently, only 15% of population has permanent access to electricity. South Africa and Nigeria will get an additional source of energy. Non-governmental groups express concern over lack of transparency and democratic oversight of the Inga III hydropower project in terms of its impact on environment and local communities.

Source:

https://allafrica.com/stories/201810190512.html, www.transrivers.ora/2018/2381/

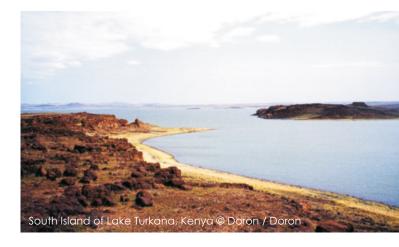
Lake Turkana National Parks (Kenya) inscribed on List of World Heritage in Danger. The World Heritage Committee decided so on 24th of June in view of its concern about the changes affecting the hydrology of the Lake Turkana Basin, notably the disruptive effect of Ethiopia's Gibe III dam with a design capacity of 1.87 GW.

Source: http://whc.unesco.org/en/news/1842

Construction of the 2,100-MW hydroelectric project is planned on the Rufiji River in the Selous Game Reserve, a Unesco World Heritage site celebrated for its animal populations. Tanzania's Government has signed a deal with Arab Contractors Company and Egyptian Elsewedy Electric Company for the design and construction of a dam with a height of nearly 134 m and the appurtenant structures for the hydropower plant with a gross output of 5,920GWh. The federal budget proposal earmarked \$307 million for the project. This amount is more than 40% of the Tanzania's national budget.

Source:

www.ruscable.ru/news/2018/11/23/V Tanzanii plani ruetsya postroity GES moschnostyu /



The Near East and North Africa region is not only highly prone to drought, but also one of the world's most water-scarce areas, with desert making up three quarters of its territory. The region's technical, administrative, and financial capacities to deal with drought are inadequate. Yet, there is still too much focus on recovering from drought rather than being less susceptible to it, with insufficient funding, preparedness, and coordination remaining significant constraints. The UN Food and Agriculture Organization (FAO) report issued in 2018 has called for a fundamental shift in the way drought is perceived and managed in the region. The agency said in the report that a more pro-active approach based on the principles of risk reduction is needed to build greater resilience to droughts. The report argues that developing and implementing national drought management policies consistent with the country's development objectives as well as establishing early warning systems are essential. It recommends disseminating technologies to combat drought, and support policies and incentives to use land and water resources rationally.

Source:

www.fao.org/news/story/ru/item/1140875/icode/

Cape Town, South Africa continued suffering from water insecurity in 2018. The water level of the major dams supplying the City have been declining since 2015 and peaked during mid-2017 to mid-2018 where water levels hovered between 15 to 30 per cent of total dam capacity. On January 1, 2018, the city announced an official limit for sustainable water use of 450 million liters per day for the entire province and declared Level 6 water restrictions, capping household water use at 50 liters per residence per day. In February, Cape Town drought was declared a 'national disaster'. Over 6 months, the city issued tenders to build 3 emergency desalination plants, and reduced agricultural use by 60%. The city raised funding to research water saving and recovery technologies and water source diversification. Thanks to all those efforts, the city was able to avoid Day Zero. Despite the ups and downs Cape Town has faced over the last few years, perhaps the biggest lesson from the water crisis is the dire need for people to take the water-wise movement seriously. No one is safe from drought. But if Cape Town has shown us anything, it's that little changes can actually make a big difference.

Source:

https://pulitzercenter.org/reporting/howcape-town-defeated-day-zero-now

The Sahara desert has gotten 10 per cent bigger since 1920 as reported by scientists from the Maryland University in their study published in the Journal of Climate. Deserts are typically defined by low average annual rainfall – usually 100 millimeters of rain per year or less. The researchers analyzed rainfall data recorded throughout Africa from 1920 to 2013 and found that the Sahara, which occupies much of the northern part of the continent, expanded by 10 per cent during this period when looking at annual trends. The most notable expansion of the Sahara occurred in summer, resulting in a nearly 16 per cent increase in the desert's average seasonal area over the 93-year span covered by the study. The study results suggest that human-caused climate change, as well as natural climate cycles such as the Atlantic Multidecadal Oscillation (AMO), caused the desert's expansion. The geographical pattern of expansion varied from season to season, with the most notable differences occurring along the Sahara's northern and southern boundaries. The study's results have far-reaching implications for the future of the Sahara, as well as other subtropical deserts around the world. As the world's population continues to grow, a reduction in arable land with adequate rainfall to support crops could have devastating consequences. The next step will be to look at what is driving these trends, for the Sahara and elsewhere.

Source:

https://umdrightnow.umd.edu/news/sahara-desertexpanding-according-new-umd-study

Chad and Senegal become the first countries **outside the pan-European region** to accede to the Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention). On 22 February, Chad submitted its instruments of accession to the Water Convention to the United Nations in New York. A landlocked country in Central Africa, Chad faces significant water management challenges and largely depends on water resources shared with its neighbours -Cameroon, the Central African Republic, Libya, Niger, Nigeria and Sudan. Senegal acceded the Water Convention on 31 August. A Sahelian country located on the western coast of Africa, Senegal shares most of its surface and groundwater resources with its neighbours -Gambia, Guinea, Guinea Bissau, Mali and Mauritania.

Source: www.unece.org/?id=49710

11.2. America

2018 marked the start of discussions between the United States (U.S.) and Canada about the 1964 Columbia River Treaty. Over 50 years after the Treaty was originally ratified, negotiators representing the governments of the U.S. and Canada (including British Columbia) sat down together to launch formal discussions (20-29 May, Washington). The second round of negotiations was held on 15-16 August in Nelson (Canada); third round, on 17-18 October in Portland, U.S.; and the fourth round, on 12-13 December, in Vancouver (Canada).

The 1964 Treaty was originally created to reduce flood risk and increase power generation on the Columbia River. The Treaty's hydropower operations and management of flood risk provide substantial benefits to millions of people on both sides of the border. The Treaty also has facilitated additional benefits such as supporting irrigation, municipal water use, industrial use, navigation, and recreation. However, northwest politicians have been pushing for years to renegotiate the Columbia River Treaty, which expires in 2024. The lawmakers are particularly keen to eliminate a so-called "Canadian Entitlement" they contend is too favorable to Canada, providing Canada with \$250 million to \$350 million a year worth of electrical power in exchange for storing water in huge reservoirs in British Columbia. But Canadians living along those reservoirs pay a price: They're subject to water levels that can rise and fall 80 feet per year. Environmental groups and Native American tribes in both countries would like the heavilydammed Columbia to flow more like a natural river, with additional water releases in dry years to aid struggling salmon and steelhead runs. That is why it is imperative that the parties ensure that any updated treaty is beneficial for both the United States and Canada.

Source:

www.state.gov/p/wha/ci/ca/topics/c78892.htm; https://engage.gov.bc.ca/columbiarivertreaty/february-7-2019-newsletter/

A Water Infrastructure Act of 2018 was adopted in the U.S. The Act provides for the improvement of water infrastructure all over the country. This water resources development bill includes provisions concerning flood control, navigation, water development, maintenance and rehabilitation of dams and reservoirs, environmental restoration, water supply, financing of infrastructure modernization, hydropower, and

community assistance. The bill contains several sections, including on rehabilitation of constructed dams, the operation and maintenance of navigation and hydroelectric facilities, dam safety, licensing of proposed hydropower projects, etc. The National Hydropower Association says the bill will "facilitate a more efficient licensing process for proposed projects at existing non-powered dams; shorten the approval timeline for projects utilizing existing conduits; provide regulatory incentives for investments at existing hydropower facilities."

Source:

www.congress.gov/bill/115thcongress/senate-bill/3021/text

Historic presidential decrees create hundreds of water reserves in Mexico. The President of Mexico, Enrique Peña Nieto, signed in June 2018 a series of landmark decrees establishing water reserves in nearly 300 out of Mexico's 756 river basins, representing 55 per cent of the country's surface water. A "water reserve" is a volume of water in a river basin allocated exclusively for the protection of nature and human consumption. The new water reserves will also improve the health of 82 Natural Protected Areas, 64 Ramsar wetlands and Mexico's last free flowing rivers. The decrees will guarantee also water supplies for the next 50 years for 45 million people.

Source:

wwf.panda.org/our work/water/freshwater news/? 328874/Historic-presidential-decrees-createshundreds-of-water-reserves-in-Mexico

The Inter-American Court of Human Rights (IACtHR) issued landmark Advisory Opinion on **Environment and Human Rights** (7 February 2018). This is the latest and potentially most significant decision in a series of high profile international judicial rulings, which acknowledge legal consequences for environmental harm. The Advisory Opinion (AO) focuses on State obligations under international environmental law and human rights law in the transboundary context, in particular as concerns the construction and operation of infrastructure mega-projects, petroleum exploration and exploitation, maritime transportation of hydrocarbons, construction and enlargement of ports and shipping canals, and so on. The AO is ground-breaking in several respects. It is the IACtHR's first pronouncement on State obligations concerning environmental protection under the American Convention of Human Rights (§ 46). Indeed, it is the first ruling ever by an international human rights court that truly examines environmental law as a systemic whole, as distinct from isolated examples of environmental harm analogous to private law nuisance claims (e.g. Lopez-Ostra v. Spain in the European Court of Human Rights). Perhaps most importantly, it is a landmark in the evolving jurisprudence on 'diagonal' human rights obligations, i.e. obligations capable of being invoked by individual or groups against States other than their own. The AO opens a door – albeit in a cautious and pragmatic way – to cross-border human rights claims arising from transboundary environmental impacts.

Source: www.ejiltalk.org/the-rise-ofenvironmentallaw-in-international-disputeresolution-interamerican-court-of-human-rightsissues-landmarkadvisory-opinion-on-environmentand-humanrights/comment-page-1/

8th World Water Forum was held in Brazil. See the detailed description in "World Water Council".

The dam Coca Codo Sinclair, which was built by China at the foot of the active volcano Reventador in Ecuador and launched in November 2016, is threatened now. More than 7,000 cracks have developed in the dam's machinery because of substandard steel and inadequate welding. Its reservoir is clogged with silt, sand and trees. And the only time engineers tried to throttle up the facility completely, it shook violently and shorted out the national electricity grid. All this directly affects the natural environment. The heavy sedimentation means engineers sporadically release large amounts of water to clear out the system, causing flash

floods and damaging both wild nature and sugar cane plantations of local farmers. Today, the dam typically runs at half capacity. Experts say that given its design - and the cycle of wet and dry seasons in Ecuador – it would be able to generate the full amount of electricity for only a few hours a day, six months out of the year. That is, if everything worked perfectly. The dam was supposed to christen Ecuador's vast ambitions, solve its energy needs and help lift the small South American country out of poverty. However, Ecuador still has to pay back the debt. The \$1.7 billion loan from China's Export-Import Bank is lucrative for China: 7 per cent interest over 15 years. In interest alone, Ecuador owes \$125 million a year. To settle the bill, China gets to keep 80 percent of Ecuador's most valuable export - oil - because many of the contracts are repaid in petroleum, not dollars.

Source: www.nytimes.com/2018/12/24/world/americas/ecu ador-china-dam.html



11.3. Asia

Afghanistan

Following the 2018 census, the population of Afghanistan is 31.56 million people. Its territory covers 652,864 square kilometers. All rivers, excluding the Kabul flowing into the Indus, are continental. The largest rivers are the Amu Darya flowing along the northern border, the Harirud used for irrigation, and the Helmand, which along with the Farakhrud, Khashrud, and Kharutrud Rivers flows into the Sistan depression and forms the Hamun lake system. The rivers are mainly fed by glacial melt water. Lowland rivers have high flow in spring and dry out in summer. Mountain rivers possess significant hydropower potential. In many areas, groundwater is the

only source of water and irrigation. The ANDMA statistics shows **underground water reserves in Kabul will dry up within the next 10 years**. At the moment, there are 213,000 wells in Kabul City, and the city uses 32 billion cubic meters of water every year, while the capacity of the city's water is 29 million cubic meters in a year.

Droughts in Afghanistan. The country is currently experiencing the worst drought in decades, affecting 20 of Afghanistan's 34 provinces. A total of 275,000 people have been displaced by drought in western Afghanistan, with over two million threatened by the effects of water shortages. Many countries assisted Afghanistan: UK pledged £ 25 million for provision of food,

shelter and clean water; <u>UN</u> – \$34.6 million; <u>EU</u> – additional €20 million; <u>Korea</u> **donated around \$2.2 million in support of** 21,000 families, including the **most vulnerable children and women affected by displacement due to drought in Afghanistan**. The Government of <u>Uzbekistan</u> sent more than 3,000 tons of food wheat to Afghanistan in humanitarian aid to support the population.

Hydropower development

In 2018, the Naghlu Hydropower Plant (NHPP), Afghanistan's largest hydropower plant, has restarted operations of one of its four turbines after being nonfunctional since 2012. The NHPP is located in Surobi district, about 85 kilometers east of Kabul city. The rehabilitation of turbine number 1 started in 2016. A Russian company was contracted to do the work. In addition to rehabilitating the turbines, it is planned to renovate the dam structure and to clean the dam's reservoir.

Constructions on the hydropower plant in **Feyzabad** will now resume after clarifying geological circumstances. The hydropower plant will provide electricity to Feyzabad's entire population—in total about 60,000 people. The Afghan-German Cooperation funds the construction via KfW Development Bank at a total cost of AFN 3.7 billion. Constructions started in 2015 and shall be finished by December 2020.

Source: https://wadsam.com/afghan-businessnews/hydropower-plant-feyzabad-benefits-60000people/

The World Bank and ADB signed an agreement to co-finance Kandahar's Dahla Dam rehabilitation project. Dahla Dam is the largest dam in Kandahar and second largest in Afghanistan. The dam was built in 1952, but it was subject to siltation of the reservoir due to neglect over the years of war. The rehabilitation project is expected to cost \$400 million, which will be financed by World Bank and ADB. Tranche 1 of four expected tranches includes raising Dahla Dam's height by 12 meters as a result of which its capacity will increase from 298 million cubic meters to 798 cubic meters. Tranche 2 includes building system to irrigate 20,000 hectares of agriculture land. Trench 3 involves water supply to Kandahar city and its neighboring villages. Trench 4 includes installing 24 MW capacities of hydropower turbines.

Source:

www.1tvnews.af/en/news/afghanistan/36370-world-bank-adb-sign-agreement-to-co-finance-kandahars-dahla-dam-rehabilitation-project-

New projects

ADB has approved a \$75 million grant to help in the development of horticulture value chains in Afghanistan, empowering farmers, crop producers, as well as <u>agriculture</u> enterprises. The project will improve agricultural productivity and food security in Afghanistan, while helping promote business linkages between agrobusiness enterprises and farmers. This will help boost growth in the subsector, which is mainly constrained by a large number of geographically scattered small-scale producers that lack access to finance as well as proper agriculture infrastructure and inputs. For agro-business enterprises, the project will help provide precooling rooms; packhouse, sorting, or grading buildings and equipment; storage facilities; processing equipment and machinery; a quality control accredited laboratory.

Source: www.adb.org/projects/51039-002/main

Afghanistan's Ministry of Agriculture, Irrigation and Livestock and USAID <u>signed</u> an agreement based on which USAID will invest \$110 million in the country's agriculture sector in the next five years. The money will be invested in two projects, Afghanistan Value Chains (AVC) and High Value Crops (HVC), to improve Afghanistan's agricultural sector.

ADB and the Ministry of Rural Rehabilitation and Development (MRRD) of Afghanistan have inaugurated the distribution of 80 off-grid solar kits, called "electricity-in-a-box", to rural households near Kabul without grid electricity. The "electricity-in-a-box" package uses recent technological advances to make off-grid connections economically more viable and environmentally friendly. In the past, solar packages only provided solar photovoltaic panels and lead acid batteries for lighting. The "electricity-in-a-box" provide not only the solar photovoltaic panels to generate energy, but also more durable lithium-ion batteries for storage and energy efficient 12-volt DC appliances including a television set, refrigerator, fan, and LED lights. The recipients will contribute a monthly fee for operation and maintenance of the kits.

EU announced a project worth € 36 million to tackle the impacts of climate change in Afghanistan. Pierre Mayaudon, head of EU Delegation in Afghanistan, unveiled the project in a ceremony in Kabul to celebrate EU Climate Change Diplomacy Week. According to the envoy, 300,000 people are displaced due to climate change in Afghanistan. The new project will prevent displacement of people.

Aid Effectiveness in Afghanistan. A joint Oxfam and Swedish Committee for Afghanistan (SCA) report on aid effectiveness found that despite improvements in some sectors, aid delivery in Afghanistan is still largely ineffective and poverty has risen. It reveals that while development aid has decreased, donor support continues to be fragmented and aid dependency remains high. The fragmentation of aid is reflected by the fact that funds for the \$ 6.659 billion Afghan government budget for 2017/18 were provided by over 30 different international donors. Donors also give money to Afghanistan 'off-budget', where it is disbursed through development partners, UN agencies, and nongovernment organizations. Afghanistan has a national development strategy, the Afghan National Peace and Development Framework (ANPDF), which is the government's plan for 2017 to 2021, and the National Priority Programs, which guide the development problem solving for the country. In reality, international donors consult with government and use the above as tools for their own planning, which is largely undertaken back in their respective capital cities. Thus, the level of development ownership enjoyed by the government is at the discretion of individual donors, with some donors not making this a priority for their aid approach. A lack of local development ownership, and poor donor alignment, leads to ineffective aid.

Source:

https://reliefweb.int/report/afghanistan/aideffectiveness-afghanistan

China

In mid-March 2018, during the 13th National People's Congress of the People's Republic of China, the <u>plan was approved</u> to **reorganize** ministries and agencies, which changed the structure of government from "sectoral" to "functional" one, with greater focus on environ**ment**. Although the Ministry of Water Resources remains, it loses many research/monitoring functions and registration of water use rights in favor of the Ministry of Natural Resources. It also transfers to the newly established Ministry of Ecological Environment the function of river basin water quality management and all matters related to regulation of waste discharge. MEE has also the honorable duty to restore and protect environment in the area of the Three Gorges Dam project and South-North Water Diversion project.

In 2018, the <u>Water Pollution Prevention and</u> <u>Control Law</u> adopted on 27 June 2017 came into force. It focuses on agricultural water

pollution; fertilizer pollution standards are introduced; protection of drinking water sources is strengthened; discharge of wastewater in those sources is severely punished. By this law, illegal discharge of pollutants is subject to a maximum fine of ¥1 million and the prosecution of reoccurrence. The government and party leaders will be assigned "river chiefs" and take personal responsibility for their status. 200 thousand "river chiefs" were already assigned; and, assignment of "lake chiefs" is still in process.

Key water policy areas in 2018 and early 2019. Economic issues topped China's recent Two Sessions given its slowing economy, but despite this China's march towards a Beautiful China appears unhindered. In the latest government budget for 2019, spending in water and soil pollution will increase by a strong 45.3% and 42.9%, reaching \(\frac{4}{3}\)0 billion and \(\frac{4}{5}\)0 billion, respectively. Spending on air pollution on the other hand will go up 25% to \(\frac{4}{2}\)5 billion. Below, we have summarized all the key policies into five categories: 1. Water; 2. Pollution; 3. Regional; 4. Industry & Tech; and 5. Energy.

- 1. Water Focused Policies. China is determined to further improve its pricing mechanism to stimulate environmental protection and green development. For water use, the government aims for a new pricing mechanism that encourages better quality and more conservation to ensure sustainable use of water resources. Other new targets include all the cities to finish the campaign of environmental protection by 2019, and to accelerate the performance in the war on urban black and smelly water bodies. For key cities, black and smelly water cleaning rate should be over 90% by the end of 2018, while for other cities by end of 2020.
- 2. Pollution Focused Policies. Of the many pollution focused polices released over the last year, the most significant one is the new "Soil Pollution Prevention & Control Law". This is the China's first dedicated law on soil protection, which builds upon the "Soil Ten Plan" issued in May 2016. Together with previously revised pollution prevention & control laws on air (2015) and water (2017), it again shows that China has escalated its fight against pollution through legislation. Two other major pollution related development plans were released in June and July 2018 to strengthen the protection of China's ecological environment. These plans include setting out various targets to achieve a "Beautiful China" by 2035 and establishing the

strictest legal system to fight the war on pollution holistically.

- 3. Regional Focused Policies. Like previous years, the Yangtze River remained a key target region for China's regional water related policies in 2018. A comprehensive action plan for Yangtze protection and rehabilitation was released in December 2018. Among other key points, the plan set out details of delimitation of ecological protection red lines along the Yangtze, controlling industrial and agricultural pollution, and improving investment and compensation schemes. This year, the Bohai River also became a priority target for water pollution protection and rehabilitation. A quota system for pollution discharge in Bohai will be gradually established.
- 4. Industry & Tech Focused Policies. To win its War on Pollution, industrial water pollution has to be controlled and the IT and communications sectors were especially targeted in the past year. For the communications industry, China released a three-year action plan to reduce water use per VAI by 23% compared to 2015, and to increase water use efficiency and corres-ponding water use standards. Moreover, an action plan to promote the green development of lead acid batteries was also put in place. More widely, China issued a development plan to accelerate the industrial green development in its core economic regions such as Jingjinji, Yangtze River Economic Belt, and Pearl River Delta. Later in December 2018, China further revised and consolidated the appraisal indicator system of clean production for 14 sectors.
- 5. Energy Focused Policies. China's first renewable energy quota finally comes into fruition with the National Energy Administration (NEA)'s consultation on "Renewable Energy Power Quotas and Assessment Methods". In early 2019, China's top planning organization revealed new solar and wind policies for subsidy-free projects. China will start building pilot wind and solar power projects that won't receive national government subsidy as it pushes to improve the competitiveness of renewable energy and rein in subsidy bills.

Source:

www.chinawaterrisk.org/resources/analysisreviews/key-water-policies-2018-2019/

China installs its first turbine on the Baihetan HPP, which will be the world's second biggest power station. HPP is constructed on the Jinsha River, which is a tributary of the Yangtze River. With a total installed capacity of 16 million kilowatts, the project is expected to generate more than 60 billion kilowatt hours of electricity per year. The power will be generated in 2021 and the plant will become fully operational by the end of 2022. Construction cost is estimated at \$24 billion.

China's Forestry and Grassland Administration announced a new initiative "Restoration of Populus Euphratica (Tugai) Forest Eco-system along the Belt and Road". Taking into account that tugais provide important economic value to people (erosion control, fodder, tourism, etc), it is planned to undertake joint afforestation in partnership with the participating countries. However, experts warn that afforestation cannot prevent desertification. Thus, effective preventive measures are indispensable at the legislative and practical levels.

The China Green Foundation <u>announced</u> the launch of an <u>international ecological</u> restoration fund, drawn from donations from companies worldwide to promote a green economy in countries involved in the BRI.

The Chinese <u>scientists</u> assessed changes in fish assemblages in the Yellow River from 1965 to 2015. According to the report, due to the dam constructions, exotic fish invasions, and flow reductions fish species richness of the river declined 35.4%, and ichthyofauna composition became more homogenous at different river sections. The lower reaches experienced significant species loss.

In 2018, China increasingly began to assess the impact of and demolish tens and hundreds of small hydropower plants and other dams damaging its ecological river basins. Firstly, dams located in the protected areas are to be demolished. In this context, an illegallyconstructed hydropower station located inside the buffer zone of the ancient Dujiangyan Irrigation System (Sichuan province), a protected UNESCO World Heritage Site was demolished. By December 2018, Zhangjiajie city (Hunan province) has closed down 34 hydropower stations, and 10 dams have been demolished on the Lishui River, a major tributary of the Yangtze River to restore the living environment of the National Natural Reserve of Giant Salamanders. This work is undertaken or planned in all basin districts.

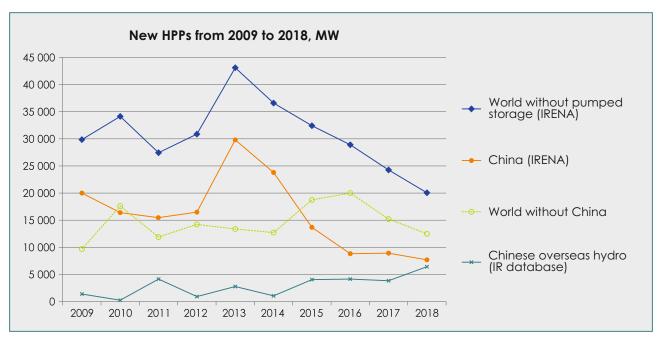


In January 2019, the China Society for Hydropower informed that it controls **70% of the world's hydropower plants under construction**. According to the Rivers without Boundaries Coalition, 75% of hydropower projects that are under construction all over the world in 2018 had Chinese financing.

Since March 2018, China has adopted new Administrative measures for Overseas Investment by Enterprises. The document says that investments concerning transboundary water resources are treated as the most risky and are

subjected to restrictions and additional permissions.

The Global Energy Interconnection Development and Cooperation Organization (GEIDCO), with its permanent office in Beijing, China, was established to develop a global energy interconnection system (GEI) to meet the global demand for electricity in a clean and green way. In May 2018, GEIDCO released the Global Power Grid Framework and the grid projects for Northeast and Southeast Asia, and in October 2018, plans were announced about



Sources: IRENA, International Rivers databases; Data of China Society for Hydropower

the pilot grids with massive development of hydropower stations in these regions. In December 2018, (GEIDCO) and the Secretariat of the United Nations Framework Convention on Climate Change jointly released an action plan for implementing the Paris Agreement. According to the Action Plan, the Global Energy Interconnection will help expand the global clean energy development scale by four times, and the average annual growth rate of clean energy consumption will increase five times. The Think Tank Alliance of Global Energy Interconnection was also officially set up. Many experts consider that the supergrid program is associated with significant economic, environmental, social, and geopolitical risks and needs strategic assessment.

Mekong

The 3rd Mekong River Commission (MRC) Summit took place on 5th of April in Cambodia to discuss the future of the Mekong River Basin. MRC, as an important inter-governmental organization, aims to improve cross border management and sustainable development of the Mekong between Thailand, Laos, Cambodia and Vietnam, with Myanmar and China participating as "dialogue partners". It works on fisheries, flood control, hydropower, irrigation and navigation.

At the summit 2018, the MRC released findings of a new study it commissioned to provide a detailed analysis of the costs and benefits of hydropower. Carried out between 2012-2017 the study claims that damming the river for power generation will have huge implications for the region. By 2040, hydropower development could deliver a whopping 16-fold increase in economic benefits. But new dams may reduce income from fisheries by up to 15% and reduce sediment reaching the river mouth by as much as 97%! Loss of such nutrient rich sediment would be disastrous for fish and agriculture, particularly in the delta. According to Mr Pham Tuan Phan, chief executive officer of MRC, the study results are very clear that countries' plans are not optimal and sustainable from a basinwide perspective. The MRC will bring countries together to optimize their future plans to increase benefits and reduce potential costs. The MRC also has a singular ability to carry out professional analysis both within and across sectors - hydropower, fisheries, navigation, irrigation, water quality, wetlands and so on.

Taking a strategic basin-wide assessment allows the countries to determine and minimize risks. As a regional body, the MRC can assist here

by acting as a facilitator of dialogue and by looking into mechanisms for sharing of benefits across borders. Such a role was acknowledged and reconfirmed at the third summit by leaders of the MRC member countries. The dialogue partners (China and Myanmar) also acknowledged the MRC's importance. Although China is not a full member of the MRC, there is a cooperative working relationship, which has gradually improved in recent years. The basis of that co-operation is good scientific analysis and understanding of the Mekong. As a dialogue partner with the MRC, China is well aware of the potential consequences of hydropower construction and has indicated its willingness to work together at a technical level on these issues. China has also clearly stated that it will operate the upstream projects so that river flows downstream are maintained at acceptable levels. At the summit, China has once again expressed its willingness to work with the MRC and all riparian countries, inviting them to play a constructive role in the Lancang-Mekong water resources cooperation. But it should be noted that cooperation still needs to be stronger.

Source:

www.chinadialogue.net/article/show/single/en/106 19-Mekong-River-Commission-reaches-out-to-China-to-avert-dam-damage-?mc_cid=6cc6658516&mc_eid=610da95136

Laos suspends new dams as dam collapse sparks government review of hydropower and could open the way for more wind and solar in the Mekong. The July 23 dam collapse in southern Laos marked a turning point that squarely exposed the vulnerabilities of Laos' current plans to become the "battery" of Southeast Asia. At least 34 people died in floods unleashed by the man-made disaster at the Korean built Xe-Pian Xe-Namnoy dam, with more than a hundred people still missing and more than six thousand displaced. Waters from the dam breach rushed into the Sekona River and sent floods downstream to Cambodia where thousands were evacuated. The flooding reportedly also caused damage to agricultural fields in Vietnam's Mekong Delta. Since the dam is built in a tributary system of the Mekong River, there is no flood warning or disaster management system between Laos and Cambodia. The information system of the Mekong River Commission only covers dams located on the mainstream of the Mekong. Clearly more transboundary cooperation is needed. The disaster highlights the bigger risks of large dam building in a region facing more frequent extreme weather and where regulation and safety standards are poor. Consequently, on August 7, the government announced a decision to suspend new hydropower projects in order to review its development strategy. The prime minister also set up a task force to inspect all dams that are completed or under construction in Laos for engineering flaws. If inspections are to be thorough, this process should take longer than one year given the need to inspect all 100 dams that Laos' Ministry of Energy and Mines claims will be up and running by 2020.

Source:

www.chinadialogue.net/article/show/single/en/107 74-Laos-suspends-new-dams-as-tragedy-raiseswiderfears?mc_cid=c61422f63b&mc_eid=610 da95136

Japan and five countries in the Mekong River Basin held a summit and adopted a joint statement titled "Tokyo Strategy 2018" (October, Tokyo). The strategy outlines a three-year cooperation plan and gives priority to strengthening connections within the region, cultivation of human resources and environmental conservation. Sandwiched by China and India and located close to the South China Sea and the Indian Ocean, the Mekong Basin is a strategic zone for land and maritime transportation. Rich in resources and labor power, the basin is also the core of development in Southeast Asia. Deepening relationships with the area in both political and economic aspects can serve the national interest of Japan. In the past three years Japan has provided more than \$6.68 billion in official development assistance for the five Mekona countries and cooperated in such areas as the expansion and improvement of the "economic corridor" linking them by arterial roads and port facilities.

Source:

www.phnompenhpost.com/opinion/ensuringstabilit y-mekong-nations

Other countries and transboundary basins in Asia

India faces its worst-ever water crisis. About 600 million Indians are facing high to extreme stress over water, according to the expert data. The comprehensive study on the state of India's water by the government's policy think-tank warned of conflict and other related threats, including food security risks, unless actions are taken to restore water bodies. Critical groundwater resources, which account for 40 per cent of India's water supply, are being depleted at unsustainable rates. Many par-

ched cities and villages in India are pushing back their "Day Zero" (when water taps run dry), but barely. About 40 per cent of the population will have no access to clean drinking water by 2030. More than 20 cities, including New Delhi, Bengaluru and Chennai, will run out of groundwater by 2020, affecting 100 million people. Agricultural baskets, states that are home to 50 per cent of the population, are the low performers in the government policy body's Water Index that could pose a "significant food security risk" for India. "What this report says was true 15 years ago, now the situation has worsened. Ninety cities in India do not have enough clean drinking water now to sustain its populace," says Rajendra Singh, a water conservation activist known as India's "Waterman".

Source: www.aljazeera.com/news/2018/06/india-facesworst-water-crisis-report-180616072654630.html

Singapore International Water Week 2018 (SIWW) was held on 8-12 July. Work together and the world has a better chance of solving its pressing water issues such as water shortages and floods. That was the key message at the Week. More than 24,000 people from 110 countries and regions attended the event, which brings together high-level speakers from government, industry, academia and international organizations. This was about four times the number that participated in the inaugural edition in 2008. More than 500 water leaders from around the world attended the recent SIWW's Water Leaders Summit. They included former United Nations secretary-general Ban Ki-moon, World Bank chief executive officer Kristalina Georgieva and Sri Lanka's Prime Minister Ranil Wickremesinghe. The Prime Minister noted Singapore as the best example of a well-managed metropolitan environment: "Singapore has tried to maximize aquifer retention within its own territory ... but wisely also struck an agreement with neighboring Johor state in southern Malaysia for water supply. Singapore is also a benchmark in desalination and potable quality recycling of wastewater..." The SIWW also paved the way to a better water future through its Young Water Leaders Summit, which connected 70 water professionals from more than 30 countries. Many of the water industry's latest innovations were on show at the SIWW's TechXchange programme and Water Expo. The one-day TechXchange connected innovators to buyers, partners and investors to accelerate the commercialisation of new water technologies. Finally, nearly \$23 billion worth of awarded projects, tenders, investments and memoranda of understanding were unveiled at the SIWW, the highest in its 10-year history.

Source: www.eco-

<u>business.com/news/singaporeinternational-water-week-2018-a-milestone-inwater/</u>

For the next 10 years, Nepal plans developing its hydropower potential, which is 40 GW as a whole, by building hydropower plants capable of 10 GW to meet domestic demands and 5 GW for export. Over the last 100 years, only 900 MW of power capacities were exploited. In October 2018, the

\$100 million Nepal Energy Sector Development Policy Credit (DPC) was launched by the World Bank. However, negotiations on big projects with China have been complicated yet. Particularly, the Budhi Gandaki hydropower project of 1.2 GW was approved and cancelled many times.

11.4. Australia

The Australian Bureau of Meteorology launched the report "Water in Australia 2016-17" in 2018. Particularly, the report demonstrates the following trends:

- Boost in public water reserves. Overall, the accessible storage volume of surface water totalled across Australia for direct water supply purposes increased due to the wetter-than-average conditions;
- Increased water trading. Entitlement and water allocation trade volumes increased in 2016-17 compared to the previous year. The volume of water entitlements traded nationally was 2100 GL, 23 per cent higher than in 2015-16. The total volume of surface water allocations traded during 2016-17 was 7000 GL, about 20 per cent higher than the previous year;
- High storage volumes at the start of 2017-18. The above-average rainfall conditions in 2016–17 facilitated a large increase in water volumes held in most of the public water storages.
- Water resources were at a low level of stress. Water stress is estimated using the United Nation's Sustainable Development Goal indicator 6.4.2. This is the ratio of freshwater withdrawn by major economic sectors and the total renewable freshwater resources, after allowing for environmental water requirements.

In Australia, this water stress indicator was 4.1% in 2016-17, 5.9% in 2015-16 and 7.4% in 2014-15.

These values are well below the initial water stress level of 25% identified by the United Nations.

Source:

www.bom.gov.au/water/waterinaustralia/files/Water-in-Australia-2016-17.pdf

Australian Government gives Snowy 2.0 green light. Snowy 2.0 is an expansion of the Snowy Mountains Scheme to increase generation capacity by 2,000 megawatts and provide 350,000 MWh. The Scheme diverts the headwaters of the Snowy River westward through the Great Dividing Range, releasing water into the Murray and Murrumbidgee Rivers. There it can be used for town water supply, irrigation and environmental use. The Project will link the two existing Snowy Scheme dams, Tantangara and Talbingo, through underground tunnels (27 km) and an underground power station.

Source:

www.snowyhydro.com.au/ourscheme/snowy20/

A pulse of green in Australia. The Lake Eyre Basin in the interior of Australia is among the driest places on the continent. With less than 125 millimeters of rain falling in this area each year, the streams and creeks that drain into Lake Eyre – the lowest point in Australia – are usually bone dry, barren, and brown. In 2018, the channels did fill after heavy downpours as observed in a series of images acquired between February 24 and April 25, 2018.

Source:

https://earthobservatory.nasa.gov/images/92100/apulse-of-green-in-australia

11.5. **Europe**

The Foreign Affairs Council of the European Union (EU) adopted new conclusions on Water Diplomacy (19 November 2018). The Council recalls that water is a prerequisite for human survival and dignity and a fundamental basis for the resilience of both societies and the

environment. The Council notes the potential of water scarcity to affect peace and security. The Council stresses the essential link between water and climate change, and welcomes recent discussions at the UN Security Council linking water, climate, peace and security. The Council

intends to enhance EU diplomatic engagement about water as a tool for peace, security and stability, and firmly condemns the use of water as a weapon of war. The Council reaffirms the EU's commitment to the human right to safe drinking water and sanitation.

Source:

www.consilium.europa.eu/en/press/pressreleases/2 018/11/19/water-diplomacy-council-adoptsconclusions/

11.5.1. Western Europe and Large European Transboundary Basins

Rhine

The International Commission for the Protection of the Rhine (ICPR) updated its Master Plan Migratory Fish Rhine, which was originally published in 2009. The Master Plan Migratory Fish Rhine shows, which measures are required for the reintroduction and development of stable populations of migratory fish in the Rhine catchment. Measures such as new and improved fish passes at transverse structures or by-pass channels open the way for or support fish migration, and spawning grounds and juvenile habitats are restored. They have positive effects on many more fauna and flora species and are suitable for sustainably improving the entire ecology of the Rhine and therefore promote the goals of the global ICPR programme Rhine 2020 for the sustainable development of the Rhine. Much has already been achieved since the first Master Plan Migratory Fish Rhine was published in 2009. Considerable progress has been made with respect to improving river continuity and the access to habitats. By dismantling weirs or constructing fishways more than 20% of the potential habitats in the Rhine tributaries are again accessible. The restoration of more fish migration routes in the Rhine catchment will lead to more natural, ecologically functioning water bodies which are more resilient with respect to climate change and its expected effects on the fish fauna. By 2027, the countries in the Rhine catchment will spend or have spent more than €627 million for hydro-morphological measures already implemented or planned.

The ICPR published 2018 a major inventory of low water conditions of the Rhine, which provides for the Rhine bordering countries a common understanding of low water situations, possible (transboundary) impacts and measures. Surprising results of the statistical analysis of historical discharge series showed that during the first half of the last century periods of low water on the Rhine were distinctly more pronounced than at the end of the 20th and the

beginning of the 21th century. Discharges were lower, and low flow periods lasted longer than in the past 50 years. These findings may predominantly be attributed to the regulating influence of numerous reservoir lakes in the Alpine region. Also, the trend towards increasing annual precipitation observed in the Rhine catchment during the 2nd half of the 20th century may contribute to this fact. Thus, the perception that low water occurs more often than in the past is not correct. However, water users are more affected, e.g. navigation, energy production, industry and agriculture.

Since low flows directly impact water quality, ecology and uses, the ICPR has decided to monitor them. For this purpose, the ICPR will soon release a web-based low water monitoring system. With the uniform ICPR lowwater monitoring on the entire Rhine, current low-water events can be directly classified in a comparative manner and possible changes in low-water discharges can be detected. In addition, the system enables the access to information about water temperature and further parameters relevant for water quality and ecology. Further, the Rhine has experienced an extreme low water event between summer and autumn 2018, which according to the classification of the ICPR low water monitoring (tested in real-time on this occasion) lasted until 130 days at some Rhine gauging stations (e.g. Cologne) with discharges falling below the "very rare low water" class on around 20 days. Numerous impacts on the uses were identified, in particular on the abstraction and use of water, energy, shipping and transport, industry, but also on ecology (fish death in the High Rhine). Despite the high water temperatures which have exceeded 28°C in the Rhine, the oxygen content remained high in various parts of the catchment area. The reasons are currently being investigated. The ICRP is presently drafting a report on the 2018 low water event.

Source: IKSR, www.iksr.org

Danube

The General Directorate of Water Management (OVF), the national water authority of Hungary, said in a statement that **the water level in the Danube river has dropped to a record low** due to the drought of 2018 (October). The water level of the river was measured at 0.49 meters, which is below the record figure set in 1947. A low water level had a major impact on shipping, since over the Hungarian section of the river there are many underwater slopes failing to provide ideal navigable depth for shipping.

Source: https://bbj.hu/energyenvironment/water-level-in-danube-falls-to-record-low 156570

Combatting drought in Danube. During the summer 2018, the DriDanube Project started testing project tools, the prototype of Drought User Service as part of the Danube Transnational Program. This Program is a financing instrument of the European Territorial Cooperation (ETC), better known as Interreg. The main objective of DriDanube project is to increase the capacity of

the Danube region to manage drought related risks. The project aims at helping all stakeholders involved in drought management become more efficient during drought emergency response and prepare better for the next drought. One of the main products of the project will be Drought User Service, which will enable more accurate and efficient drought monitoring and timely early warning. The service will integrate all the available data, including large volume of the most recent remote sensing products. The Project also started regularly publishing, every two weeks, the Regional drought bulletins together with the maps documenting the situation. The bulletins include summary of the state of soil and vegetation based on soil water index, estimated drought impacts on vegetation, and national reports on drought and drought impact analysis. The current information is provided by DriDanube partners from 10 countries.

Source: www.interreg-

danube.eu/aboutdtp/programme-presentation; www.interregdanube.eu/approvedprojects/dridan ube/section/drought-2018-watch

11.5.2. South Europe

The Balkan Peninsula, one of Europe's most undeveloped regions, is facing a wave of thousands of hydroelectric projects that would block pristine, free-flowing rivers and cause major environmental damage. Nearly 2,700 dam projects are planned or under construction from Slovenia to Greece. Dam proponents say the hydroelectric projects will supply badly needed renewable energy to the region. Ironically, the Balkans' current hydropower boom owes its existence to international and EU climate protection measures, which set national greenhouse gas reduction targets and require the use of government subsidies to fulfill them. The International Hydropower Association, an industry lobby group, sees hydroelectricity as a viable way for countries such as Albania, Bosnia, and Montenegro to comply with international climate goals and meet criteria required for EU entry.

The association stresses that currently the western Balkans' other main source of electricity generation, besides hydropower, is coal. Scientists and conservationists warn the projects could profoundly alter the region and local residents concerned about threats to their drinking water sources organize protests in the proposed sites of hydropower projects. Opponents say they do not object to all hydroelectric projects in the Balkans, but argue that far fewer should be built and only on the region's less pristine rivers. They also say that other, less environmentally destructive forms of renewable energy, such as solar and wind power, should be given higher priority than hydro, much of which, they argue, is slated for export to Western Europe anyway.

Source: https://e360.yale.edu/features/a-balkandam-boom-imperils-europes-wildest-rivers

11.5.3. Eastern Europe and Caucasus

Belarus

Drinking water supply. Specific <u>sanitary and epidemiological requirements</u> for maintenance and operation of sources; centralized and non-

centralized drinking water supply systems; organization of sanitary protection zones of sources of centralized drinking water supply systems, and monitoring of drinking water safety indicators have been approved by Resolution

of the Council of Ministers (No. 914 of 19 December 2018).

Transboundary cooperation. Delegation of the Ministry of Natural Resources of Belarus participated in the meeting of Belorussian-Polish Working Group on water resources (July, Warsaw). During the meeting, the parties discussed the draft agreement between the governments of Poland and Belarus on cooperation in the area of transboundary water protection and use and agreed the text of the document.

The implementation of the Project "Transboundary Water Inspectors: Towards Joint Monitoring and Development of Water Resources in the Pripyat Basin" was started in Belarus (July). The total budget is €227,800, of which 90% is a contribution of EU. The transboundary project is aimed at preserving small rivers of the Pripyat catchment basin, which are the crucial sources of drinking water, and without which it would not be possible to develop agriculture and support ecosystems of the republican regions. Also, environmental conditions of the Black Sea, which the Pripyat River flows into, depend on the quality of water in the rivers and lakes located in the Pripyat Basin, in the areas of Pinsk and Lyubesov.

Source: www.pinsknews.by/?p=56716

Moldova

Hydro-technical construction and reconstruction. An agreement on provision of grant by the Government of Germany in the amount of €16.5 million for the project on the improvement of water infrastructure in the central part of the Republic of Moldova was reached. It is planned to construct the main conduit Chisinau-Straseny-Calarasch.

Ecology. The agreements between research institutions and non-governmental organizations of Republic of Moldova, Romania and Ukraine on introduction of innovative transboundary monitoring system in the context of transformation of ecosystems of the Dniester and the Prut Rivers belonging to the Black Sea basin have been reached. Interested parties plan to develop a unified system of key environmental and multi-annual indicators. These indicators will be submitted to officials of the three countries in order to be considered while making decisions on management of the Dniester and the Prut rivers. The "HydroEcoNex" Project is financed by the EU and its budget is appro-

ximately €900,000. The period of implementation is 30 months.

Source:

https://noi.md/ru/obshhestvo/startovalproekt-transgranichnogo-monitoringa-rek-dnestr-iprut

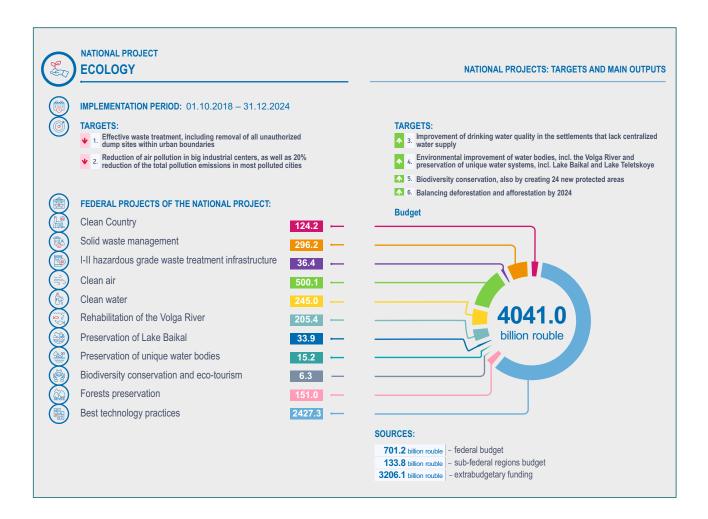
Impact assessment. The Ministry of Agriculture, Regional Development and Environment of the Republic of Moldova and UNDP launched the Project on the assessment of social and environmental impacts of the new HPPs on the Dniester River (September 2018). The Project financed by the Sweden Government in the amount of \$500,000 will be implemented in 2018-2019.

Russian Federation

Latest developments in legislation. The President of the Russian Federation has signed Decree "On national goals and strategic objectives of the Russian Federation through 2024" (No. 204 of 7 May). According to the Decree, the National Project "Environment" (see the drawing below) was prepared. The global goal is to improve the quality of drinking water and environmental rehabilitation of water sites by 2024. The project comprises 11 federal sub-projects, including "Clean Water", "Improvement of environmental conditions of the Volga", "Preservation of Lake Baikal", and "Preservation of unique water sites".

Governmental Order of RF (No. 507-p of 26 March 2018) has changed the borders of water protection zone of Lake Baikal. The plan of new boundaries of water-protection zone of Lake Baikal was prepared by experts using two approaches: for inter-settlement territories and for coastal settlements. The inter-settlement territory approach is based on preserving the state of coastal areas, self-cleaning and flowforming capacities of rivers and landscapes in their catchments, for which purpose the experts have suggested limiting the area, from which all water is drained directly into Lake Baikal. As for the coastal settlements, the boundaries of the water-protection zone are set according to the protective belt of the lake covering 200 meters. This territory is of especial fishery importance (place of spawning, feeding, wintering of fish and other aquatic biological resources), information about which is contained in the Unified State Register of Real Estate.

Source: https://regnum.ru/news/polit/2399585.html



Implementation of the Target Program

In 2018, as part of the Federal Target Program "Development of Water Sector of Russian Federation in 2012-2020", approved by Governmental Decree No.350 of 19 April 2012, several measures to achieve the main objectives of the Program were undertaken. Particularly, as a result of measures aimed at ensuring guaranteed supply of population and economic entities with water, 15 thousand were provided with guaranteed water supply. In order to improve sanitary conditions of water sites, more than 115 km of river channels and about 232 ha of the water area of lakes and reservoirs were cleaned. To ensure the accident-free pass of high-water and floods, more than 300 km of problem-prone sections of river beds have been inspected prior and after flood events. Ice jams have been eliminated, including ice-breaking and ice-cutting along 976 km; also other mechanical work to weaken the strength of ice on an area of approximately 7 km² has been completed. Hydro-technical constructions have been rehabilitated to ensure safety.

Source: http://voda.org.ru/news/main/minprirodyv-2018-godu-vydelit-1-milliard-rubley-navodoochistnyesooruzheniya

Hydro-technical construction and reconstruction

In 2018, in preparation to irrigation season, land reclamation agencies rehabilitated more than 2,500 hydrotechnical constructions, implemented earthwork operations, including cleaning of main canals from silt and vegetation, on the area of more than 5 million m³. Agricultural producers prepared irrigation and drainage systems of general and individual use on the area of more than 3 million ha.

Source:

http://mcx.ru/pressservice/news/minselkhoz-rossii-okhode-podgotovkimeliorativnykh-sistem-k-polivu-20474

Fishery

The Federal Law "On recreational fishing and amendment of certain legislative acts of the Russian Federation" (No. 475-FZ of 25 December 2018) was adopted. According to the Law, citizens are entitled to recreational fishing in water bodies of general use, except for reservoirs located on the land of defense and security, as well as in specially protected natural territories. With the purpose to protect the

interests of fish farms, restrictions are set for fishing in a number of water bodies used for commercial aquaculture. The Law also introduces a concept of daily quota of fish catch and prohibits recreational fishing using explosive and chemical agents, electric current, as well as netting gear, including gillnets. All gillnets will be required to undergo a registration and an obligatory single-piece marking.

Source: https://novostivl.ru/post/68474

The Ministry of Agriculture and Forestry of Finland and the Federal Agency for Fishery of the Russian Federation signed Memorandum on fishery development in water bodies located in frontier zones (April 2018). The document will allow establishing a Russian-Finnish Group, which will conserve fish resources of two states. One of the main tasks of the Group will be the development of fish stock management strategy.

Source: https://topspb.tv/news/2018/04/24/rossiya-ifinlyandiya-dogovorilis-o-sovmestnom-razvitiirybolovstva

The production of drip irrigation systems and manufacturing of emitter-type drip tapes started in Volgograd province. Administration of the province has signed an investment agreement with LLC "Green growth" for implementation of the project. The total cost of the investment project is approximately 170 million rouble. The volume of production is to be 77,000 km a year.

Source: http://www.kazakhzerno.kz/novosti/mirovoj-rynok-selskogokhozyajstva-i-prodovolstviya/246180-rossiya-vvolgogradskoj-oblasti-budut-vypuskat-sistemykapelnogo-orosheniya

Ecology

The All-Russian campaign for cleaning up water bodies - "Water of Russia-2018" was held from 1 March to 30 September. An unprecedented number of volunteers – 1.8 million – took part in this campaign. The volunteers cleaned up more than 5,300 water bodies in 85 regions of the country and collected 1.7 million bags of litter. For the first time, several administrative regions used separate waste collection. The Ministry of Natural Resources and Environment of the Russian Federation initiated and organized this event with the support of the "ECA" ecomovement of Russia and the Conservation Union.

Source: <u>www.чистыеберега.pф/assets/vodarossii-2018.pdf</u>





The Ministry of Natural Resources and Environment of the Russian Federation with the support of "ECA" eco-movement organized an interactive ecological lesson "Water of Russia. Clean rivers". The lesson was joined by more than 10,000 teachers from all Russian regions; a children's paintings competition "Rainbow drops" was initiated in 12 different nominations and on different topics to promote water saving; IV educational campaign "I am Water—2018" was organized (10-19 August, Sochi) and brought together more than 25,000 people.

In 2018, the "The map of socio-environmental conflicts" portal was developed. The portal works as a public situation center collecting from people and processing actual information on "hot" environmental spots all over Russia.

Source: http://ecosociety.ru/bezrubriki/nachalrabotu-interaktivnyj-portal-kartasotsialnoekologicheskih-konfliktov

The full-scale satellite monitoring of the state of water sites was started in May in Amur province and Zabaykalsky Krai with the support of the Russian division of the Wildlife Fund. Using satellite images, ecologists from the international coalition "Rivers without borders" and

experts of the Satellite Monitoring and Civil Control Centre detect actual river pollution evidences caused by gold mining.

Source: https://new.wwf.ru/resources/news/amur/zolotyereki-v-zabaykale-i-amurskoy-oblasti-pod-pritselomsputnika

Symposiums, Conferences and Forums

More than 1,000 participants joined the 9th International Ecology Forum from 75 Russian regions and 10 foreign states. Leading Russian and foreign companies presented innovative projects and equipment relating to water protection and rational natural resource development; technical facilities for monitoring of contaminated environments and services to prevent and liquidate consequences of environmental pollution. Based on the results of the Forum, the Annual Public Resolution on Environmental Protection was prepared (22-23 March, Moscow).

- 9th International Science Conference on ecological world outlook "Ecology of external and internal environment of the social system" ("EcoWorld-9") was dedicated to the results of the Year of Ecology in Russia (29-30 March, Mytishi Department of MSTU named after N.E. Baumana).
- 5th International Conference "Innovative approaches to ensure sustainable development of socio-ecology-economic systems" was organized in the form of roundtables and a science workshop "Homeostatic mechanisms of biological systems: problem statement and different approaches" in April in the cities of Samara and Tolyatti.
- 20th Anniversary International Scientific-Industrial Forum "Great rivers (ecological, hydrometeorological, and energy security)" was held under the auspices of the Year of Volunteers in 2019. Representatives of 14 countries, 32 Russia's regions, 108 enterprises and organizations attended this Forum. Task-oriented exhibitions dedicated to environmental technologies in energy and other sectors; the Children-and-Youth Environmental assembly; and, exhibition of photographs of the Russian Geographical Society "The most beautiful country" took place during the Forum. The Resolution of the science congress "Sustainable development of great river basins" was adopted (15-18 May, Nizhniy Novgorod).
- 2nd All-Russian Water Congress addressed global issues such as water use, improvement of living conditions of the people, and economic

prosperity considering the existing environmental challenges. Special attention was paid to the state's role in ensuring global technological leadership of Russia in the global market for water and water-intensive products; promotion of effective integration of country water resources into economic circulation; development of export potential of all water use sectors; and, solution of global environmental and water scarcity problems. The Congress was organized in form of 30 thematic sessions, roundtables and panel discussions. The IV All-Russian Congress of Water-Supply Companies has become an important event of the II All-Russian Water Congress. The EXPO presented modern innovative solutions on water treatment, transportation and processing (5-7 July, Moscow).

5th All-Russia Environmental Forum "Creating shared values: combining efforts to ensure environmental sustainability" was organized on 5th of September in Moscow. During the Forum, the proposals on up-scaling of the most efficient manufacturing practices related to saving of natural resources, industrial waste disposal, optimization of package use and its further processing in all regions of the country were put forward.

More than 30 states took part in the 2nd Baikal International Ecological Water Forum. Experts in environment, water management and tourism have discussed topical environmental and resource-saving issues. The Forum slogan was "Baikal is a source of life". The Agenda of the Forum included two plenary meetings and eight thematic sections. Based on the results of the Forum, the Resolution was adopted (20-21 September, Irkutsk).

Conference "Water resources of Russia: state-of-affairs and management". The Conference was organized in form of a plenary meeting and four sessions. During the sessions, reports on the following topics were presented: preparation, implementation and adjustment of Master Plans for the integrated use and protection of water resources (IUPWR); formation and use of water resources in Russia; management of large reservoirs and their cascades; monitoring of water quality, river bed, shores, water-protected zones and coastal and shelter belts by using drones and satellite data, etc. (8-14 October, Sochi).

Science-to-practice conference "The SUE "Vodokanal of Saint-Petersburg": 160 years in the service for the great city" was held on 10th of October. Experts of the enterprise, Russian Academy of sciences, Russian water supply and water sanitation association, and non-governmental environmental fund named after V.I. Vernadskiy participated in the Conference (Saint-Petersburg).

International cooperation

Representatives of five states of the Teheran Convention signed the Caspian Sea Environmental Impact Assessment Protocol (Extraordinary Session of the Conference of the Parties to the Framework Convention for the Protection of the Marine Environment of the Caspian Sea, 20 July, Ministry of Natural Resources of the Russian Federation). The document will ensure proceeding with practical implementation of the Convention's provisions and help to maintain efficient use of natural resources in the region. All interested parties have been waiting for this event for 15 years. (See section "The Caspian Sea: Special legal status").

BRICS countries signed the Memorandum of understanding on environmental cooperation (10th Summit of BRICS, 26 July, Johannesburg). This has become an important step in strengthening environmental cooperation between the states in certain directions: air quality, water resources, biodiversity, climate change and adaptation, and implementation of SDGs up to 2030.

VIII (XXVI) meeting of the Russian-Kazakhstan Commission on joint use and protection of transboundary water bodies was held with the participation of members of the Russian and Kazakhstan Delegations (8-10 August, Rostov-na-Donu).

IX Meeting of the Working Group on water resources management of the Joint Russian-Chinese Commission on rational use and protection of transboundary waters (3-5 July, Qingdao, China).

General Meeting of member-organizations of the European Centre for River Restoration (ECRR) and mini-symposium devoted to river restoration practices in Europe (13-14 November, Wageningen, Netherlands). The events were organized by Wetlands International (European office) together with STOWA (Netherlands Office of water applied research). Three ECCR information bulletins were issued (April, July, December).

Anniversaries

Environmental Service of the country celebrated 30 years. The Environmental Service has been operating since 7 January 1988. That day, the CK CPSU and the Council of Ministers of the USSR have adopted Decree No.32 "On fundamental change in nature protection area in the country".

The Lenskoe Basin Organization celebrated 50 years. On 25 June 1968, the Yakutsk branch of Hydro-chemical laboratory of the Amur Basin Inspection was established in Yakutsk city.

80th anniversary was celebrated by the Geographical Department of MSU named after M.V. Lomonosov, which was established by the decision of the All-Union Higher School Affairs Committee on 23 July 1938 as a result of division of the Soil-geographical Department into geology-soil and geographical departments.

90th anniversary was celebrated by the Azov Fishery Research Institute (FSBSO "AzNIIRH").

Ukraine

The Law (No.2354-VIII of 20 March 2018) "On strategic environmental assessment" was adopted. The aim of the Law is to regulate relations in the area of assessment of environmental and health impacts which will be conducted at a stage of development of national planning documents in several branches of economy, including energy, agriculture, forestry and fishery, and water use. The document also provides for organization of obligatory transborder consultations in cases the projects undertaken in Ukraine affect the interests and impact environmental conditions in neighboring countries.

Source:

http://elvisti.com/news/2018/3/20/radaprinyalazakon-o-strategicheskoy-ekologicheskoyocenke

Resolution of the Ukrainian Cabinet of Ministers (No.758 of 19 September 2018) approved a **new** order of state water monitoring. The new system of surface water, groundwater and sea water monitoring provides for the following: clear distribution of responsibilities between organizations that measure indicators, with no duplication of duties; extended list of biological, hydro-morphological, chemical and physicchemical indicators to be monitored; introduction of 6-year cycle of monitoring and classification of water conditions: 5 classes for ecological state and 2 classes of chemical state; increasing number of water monitoring points: from hundreds to several thousands. Based on the data of the Ministry of Ecology and Natural Resources of Ukraine, the document introduces the European water resources monitoring system.

Source: https://regnum.ru/news/polit/2485416.html

In February 2018, Ukraine joined the Council of the Global Environment Facility and, for the first time, started to represent the interests of so-called Neighborhood, which consists of 13 countries (Albania, Bulgaria, Bosnia and Herzegovina, Croatia, Georgia, Macedonia, Moldova, Montenegro, Poland, Romania, Serbia and Ukraine).

Source: http://elvisti.com/news/2018/2/14/ukraina-stalachlenom-soveta-globalnogo-ekologicheskogofonda

The State Agency for Water Resources and the journalistic agency "Agenciya journalistiki Danih" developed an interactive map of pollution of the Ukrainian rivers - "Clean Water". Only 15 countries offer similar free resources. The tool was created on the basis of open data on quality of surface water in the basins of Dnieper, Vistula, Don, Southern Bug, Dniester and Danube. In one click, the interactive tool allows choosing the required river basin from menu and assessing its water quality. If the contamination level is higher than norm, the user will learn about it through special indicators – pink "petals". The map shows entities which, based on the data of State Water Agency, are the biggest polluters of rivers in each province.

Source: https://vokrugsveta.ua/ecology/vukrainesozdali-interaktivnuyu-kartu-zagryazneniyarek-10-07-2018

Ministry of Ecology and Natural Resources of Ukraine insists on expert discussion of the Ukrainian Hydroenergy Development Program up to 2026, which includes construction of such notable structures as Dniester PSPP (1-3 phases), Kanevskaya PSPP, Tashlyk PSPP, particularly, increase of the water level in the Alexandrov reservoir up to 20.7 m, and Upper-Dniester PSPP cascade. Also, Ukrainian civil organizations have sent an appeal to the Prime-Minister of the country against implementation of the Program in its present shape.

Armenia

Hydro-technical construction and reconstruction. The Government of Armenia approved the programs for construction of 12 new reservoirs. the first of which (Vedinskoye) is to be put into operation in 2020. The reservoir and irrigation system construction program is implemented at the expense of credit provided by the French Development Agency and co-financed by the Government of Armenia. The country looks for potential investors for another 11 projects, construction of which is planned in Vayots-Dzor, Tavush, Gegharkunik and Armavir regions. The Memorandum of understanding was signed between the State Water Management Committee at the Ministry of Energy Infrastructure and Natural Resources and the Polish Company "Simed Construction" (March 2018, Yerevan). Based on the Memorandum, the parties will develop public-private cooperation on the reservoir construction programs. The Committee on Financial-Credit and Budgetary Affairs at the National Assembly of Armenia approved draft Credit Agreement "On additional financing of the irrigation system improvement project" between the Republic of Armenia and the International Bank for Reconstruction and Development in the amount of \$2 million for development of gravity irrigation system (April).

Environmental Impact Assessment. The Government of Armenia has set environmental impact assessment criteria for construction and operation of small hydropower stations (March). In total, the Government approved 10 criteria relating to existence of endemic species of aquatic flora and fauna registered in the Red List of Armenia; maintenance of actual water flow at the level, which does not exceed the environmental water releases set by water-use permission; existence of sanitary-protection territories of water ecosystems; existence of natural sanctuaries within 150 meters; availability of roads or their construction in the sites of small hydropower stations; compliance with the required distance from settlements; and noise effect on environment and population health. There is also provision for suspension of HPS license in case of over 40% load on rivers from diversion pipes.

Ecology. Armenian and Turkish experts have cleaned the bottom of the transboundary Aras River from silt and litter (February). Totally, 200 km of river bottom along the border were cleaned up.

International cooperation. The first component of the USAID PURE Water Project – Participatory Utilization and Resource Efficiency of Water was completed. The total cost of the Project is \$1 M (March). The first component included a legislation study to identify gaps preventing from water efficiency and resulted in the development by lawyers and international experts of an appropriate strategy.

A Memorandum of Understanding was signed between USAID and the CocaCola Hellenic Bottling Armenia Company. According to the Memorandum, the Public Awareness Program on responsible and efficient water resources management for people living in Ararat and Armavir provinces will be implemented (July).

An <u>Agreement</u> was signed between the French Water Agency and the Agency for Water Management at the Armenian Ministry of Environment on the provision of technical support in water management in Armenia (October). The purpose of the Agreement is to create mechanisms for strengthening of institutional technical cooperation in water management and efficient use of technical facilities. The document can become the basis for investing of approximately €75 million in efficient water use in household-domestic and agricultural sectors in Armenia.

As part of the Program "European Union Water Initiative Plus for the Eastern Partnership" (EUWI+), an <u>Agreement</u> on procurement, joint actions and services was signed between the

Armenian Ministry of Nature Protection and the Austrian Federal Environment Agency (October). The main purpose of the EUWI+ in Armenia is to enhance laboratory and monitoring services so that the country could approximate its legislation to the standards of Water Framework Directive and improve monitoring of surface water and groundwater. Considering the abovementioned, it is planned to improve and upgrade the existing monitoring infrastructure under cooperation with the Federal Environment Agency of Austria. The total amount of aid provided to Armenia will be €1 million, of which approximately €600,000 will be directed to modernization of infrastructure, procurement of equipment and monitoring.

Azerbaijan

Hydro-technical construction and reconstruction. After capital reconstruction the Mingachevir HPS has been put into operation at the capacity of 424 MW (February 2018). As a result of construction and modernization of a number of hydraulic structures (main canals, such as "H", Verhne-Milsky, Shamkir-Samuh-Geranboi, Apsheronsk and Neft Chalinsk, as well as Samur-Absheron irrigation system, etc.), more than 102,000 ha of arable land was provided with water. The Azeri Company "Gilan Pivot" started production of modern irrigation systems. The cost of equipment for irrigation of 1 ha is approximately \$1,050.

Water supply. Water supply systems in the cities of Agstafa, Tovuz and Gebele were improved. The project on reconstruction of water supply system and construction of first sanitation system in Lerik was completed. The water supply and sanitation systems were reconstructed for 15,000 people in Mingachevir as part of the State Socio-Economic Regional Development Program. Construction of the biggest water-treatment plant next to the Shamkirchai reservoir was completed as well. This plant will

improve water supply for almost 400,000 people in three cities – Ganja, Shamkira and Samuh – and adjacent villages. An agreement was reached with the Japanese Government on allocation of \$90,000 for construction of water supply system in the Turkenjil village of Lankaran district.

Ecology. During the year, 370 million young fish was released into water ponds all over the country, including: 75,000 salmons; 7.59 million sturgeons, and 362 million carps.

Georgia

The 4th Annual International Congress and Exhibition "Hydropower: The Caspian and Central Asia" was held in Tbilisi (20 February). It is a professional platform for high-level participants to discuss key topics to guide the course for hydropower construction and operation in the Caspian and Central Asia region (Georgia, Azerbaijan, Iran, Armenia, Russia, Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan).

Hydro-technical construction and reconstruction. An agreement was signed on allocation of credit funds in the amount of €28 million between the Georgian Ministry of Finance and the EBRD Regional Office for the "Inguri" hydropower station rehabilitation project as part of the improvement of climate resilience (January). The project was planned for 2018-2021; however, because of expected repair of diversion tunnel, the start dates was moved to 2020. In total, considering the above-mentioned €28 million, the amount provided by EBRD for rehabilitation of "Inguri" HPS exceeds \$100 million. Once capital rehabilitation had been finished, an opening ceremony of the Sukhumi HPS, built in 1936, was held (December). The Head of State and cabinet ministers took part in the ceremony. The project cost was approximately \$12 million. After rehabilitation, the capacity of the Sukhumi HPS reached 19.6 MW.

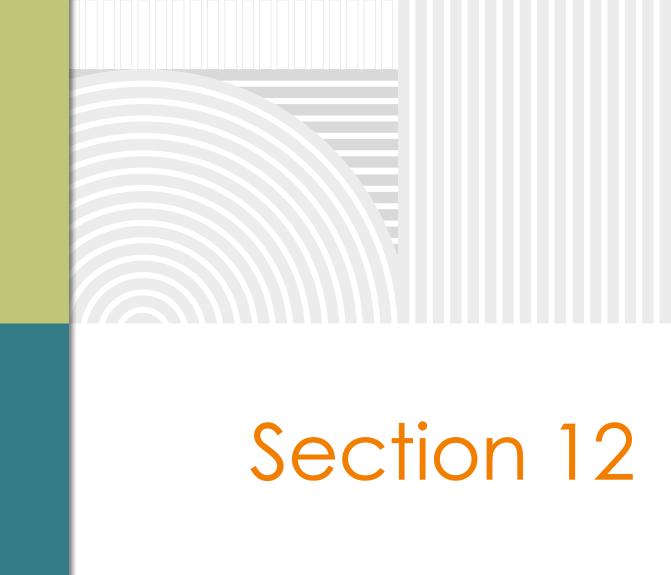
11.6. Middle East

Israel is responding to a five-year drought with plans for more desalination plants and an expanded pipeline grid. Years of dry conditions have reduced Israel's natural water resources to their lowest levels in 100 years, and its existing desalination and wastewater treatment systems cannot keep up with the demand. Its fertile land in the north is at risk, and both agriculture and the environment are stressed. Israel's water ministry announced plans to build two more desalination plants to add to the five that have been put along the Mediterranean coast over the past 13 years. Plans also include expanding the nation's pipeline system, and pumping less from

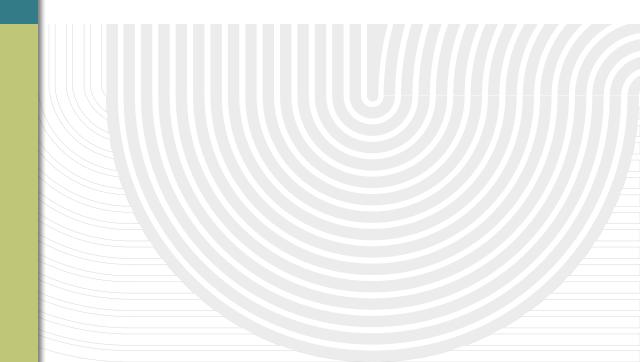
natural springs in order to restore rivers. There is even talk of sending massive amounts of water to the struggling Sea of Galilee, which is actually a lake near the Syrian border that serves as Israel's prime freshwater source. The water ministry intends to present the plans for government approval in the near future. The Middle East is particularly vulnerable to climate change, and competition for scarce water is a flashpoint for conflict and a driver of migration.

Source: www.circleofblue.org/2018/world/whats-up-withwater-april-16-2018/





Thematic Reviews



12.1. Climate Change

State of the Climate Indicators in 2018

This publication marks the twenty-fifth anniversary of the <u>WMO Statement on the State of the Global Climate</u>, where the following key climate indicators are provided.

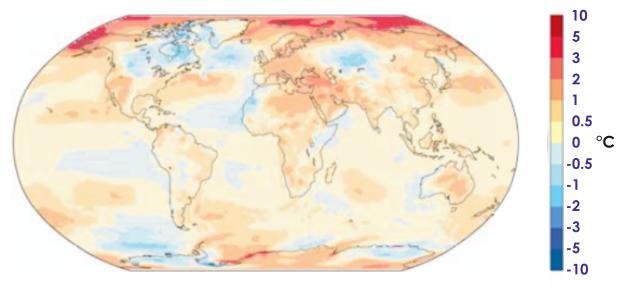
Temperature. The global mean temperature for 2018 is estimated to be 0.99 ± 0.13 °C above the preindustrial baseline (1850-1900). The year 2018 was the fourth warmest on record and the past four years – 2015 to 2018 – were the top four warmest years in the global temperature record. The year 2018 was the coolest of the four. In contrast to the two warmest years (2016 and 2017), 2018 began with weak La Niña conditions, typically associated with a lower global temperature. Above-average temperatures were widespread in 2018 (see Figure below). According to continental numbers from NOAA, 2018 was ranked in the top 10 warmest years for Africa, Asia, Europe, Oceania and South America.

Greenhouse Gases and Ozone. In 2017, GHG concentrations reached new highs. Real-time data from a number of specific locations, including Mauna Loa (Hawaii) and Cape Grim (Tasmania) indicate that they continued to increase in 2018. It is anticipated that a new record high of 36.9 ± 1.8 billion tons of CO_2 was reached in 2018. Ozone depletion started relatively early in 2018 and remained above the

long-term average until about mid-November. The ozone hole area reached its maximum for 2018 on 20 September, with 24.8 million km². Despite a relatively cold and stable vortex, the 2018 ozone hole was smaller than in earlier years with similar temperature conditions, such as, for example, 2006. This is an indication that the size of the ozone hole is starting to respond to the decline in stratospheric chlorine as a result of the provisions of the Montreal Protocol.

Oceans. Ocean heat content is at a record high and global mean sea level continues to rise. Sea-surface waters in a number of ocean areas were unusually warm in 2018, including much of the Pacific. The oceans absorb more than 90% of the energy trapped by greenhouse gases and 25% of anthropogenic CO₂ emissions, making them warmer and more acidic. For each 3-month period until September 2018, ocean heat content was the highest or second highest on record. 2018 set new records for ocean heat content in the upper 700 m (data since 1955) and upper 2,000 m (data since 2005), exceeding previous records set in 2017. Global Mean Sea Level from January to July 2018 was around 2 to 3 mm higher than the same period in 2017 and the highest on record. Ocean acidification continues - global pH levels continue to decrease.

Surface-air temperature anomaly for 2018 with respect to the 1981–2010 average



Source: ECMWF ERAInterim data, Copernicus Climate Change Service

Cryosphere. Arctic sea-ice extent was well below average throughout 2018 and was at record low levels for the first two months of the year. The annual maximum occurred in mid-March and was the third lowest on record. The minimum extent in September was the 6th smallest on record, meaning that all 12 smallest September extents have been in the past 12 years. Antarctic sea-ice extent was also well below average throughout 2018, with its annual maximum in late September and early October. Greenland witnesses the largest surface mass budget (SMB) net gain since 1996 and the highest snow fall since 1972. Despite the gain in overall SMB in 2017 and 2018, it is only a small departure from the trend over the past two decades, which has witnessed the loss from the Greenland ice sheet of approximately 3,600 gigatons of ice mass since 2002. Preliminary results for 2018, based on a subset of glaciers, indicate that the hydrological year 2017/18 was the thirty-first consecutive year of negative mass balance, with a mass balance of -0.7 m water equivalent. The cumulative loss of ice since 1970 amounts to 21.1 m water equivalent. During 2018, the average northern hemisphere snow cover extent was 25.64 million km². This was 0.77 million km² greater than the 1981-2010 average.

Precipitation. Although weak La Niña conditions were present at the beginning of 2018, later changing to neutral, the usual effects on precipitation were absent. In 2018 large positive precipitation anomalies with respect to a 1951-2010 climatology, in some places above the 90th percentile, were observed in some regions in northern and eastern Africa, the Arabian Peninsula, central and south-east Asia and the Malay Archipelago, south-western Australia, New Zealand and eastern North America.

Extreme Weather

Tropical Storms. The tropical cyclone season in the northern hemisphere was active in 2018. There were 74 northern hemisphere cyclones in 2018, well above the long-term average of 63. Two of the strongest tropical cyclones were Mangkhut, which impacted the Philippines, Hong Kong SAR and China, and Yutu, which brought devastation in the Mariana Islands.

Flooding, Extreme Rainfall and Extratropical Storms. In August, the southwest Indian state of Kerala suffered the worst flooding since the 1920s, displacing more than 1.4 million people from their homes and affecting more than 5.4 million. Large parts of western Japan experienced destructive flooding in late June and

early July, killing at least 230 people and destroying thousands of homes. Flooding affected many parts of east Africa in March and April. This included Kenya and Somalia, which had previously been suffering from severe drought, as well as Ethiopia and northern and central Tanzania. An intense low-pressure system in the Mediterranean Sea in late October brought flooding, high winds and loss of life.

Heatwaves and drought. Large parts of Europe experienced exceptional heat and drought through the late spring and summer. Eastern Australia experienced significant drought during 2018, especially New South Wales and southern Queensland, with much of the region receiving less than half its average rainfall for the period from January to September. Severe drought affected Uruguay, and northern and central Argentina, in late 2017 and early 2018, leading to heavy agricultural losses. Both Japan and the Republic of Korea saw new national heat records (41.1 °C and 41.0 °C, respectively.). Oman reported one of the highest known minimum overnight temperatures of 42.6 °C in June. Algeria saw a new national record of 51.3 °C in July.

Cold and Snow. One of the most significant cold outbreaks in recent years affected Europe in late February and early March. In southern Africa, Lesotho received an unusual snow event in mid-August with 5-30 cm of snow accumulation across the nation. In South America, two rare snow events occurred in Chile, Bolivia, Uruguay, and Argentine.

Wildfires. Major wildfires affected Athens (Greece) on 23 July, with many fatalities. British Columbia in Canada broke its record for the most area burned in a fire season for the second successive year. California suffered devastating wildfires, with November's Camp Fire being the deadliest fire in over a century for the U.S.A.

Severe Storms. The most significant European windstorm of the 2017-18 winter was Friederike. An intense low-pressure system in the Mediterranean Sea in late October brought flooding and high winds to several countries. Italy was the worst affected. The severe weather season in the United States had below-average levels of activity about 10% below the 1991-2010 average.

Main Conclusion. We are not on track to meet climate change targets and rein in temperature increases.

Source: WMO,

https://library.wmo.int/index.php?lvl=notice_display&id=20799#.XVT3GdSLSHu

Paris Agreement on Climate

By 1 January 2018, 185 Parties have ratified the Paris Agreement, which came into force on 4 November 2016. Many countries have drafted their National Climate Action Plans (INDCs) as part of the Agreement¹⁶ and proceed to their implemen-

tation. Among the Central Asian countries, Uzbekistan ratified the Paris Agreement and presented its Nationally Determined Contributions (NDC) in April 9, 2018. The Summary Table on all Central Asian states is provided below.

Major events, reports and significant events

Almost 200 states have agreed on measures to limit global warming in Katowice, Poland, after a two-week marathon of negotiations in December 2018. The state representatives participating at the Conference of the Parties (COP24) agreed on a 156-page rulebook on Saturday night, listing measures and controls to limit the global rise in average temperatures to well below two degrees Celsius. International climate policy has once again gotten away with it. With the conclusion of Katowice the implementation of the Paris Agreement can be continued. But farreaching announcements to increase the ambition of NDC are still lacking. The USA has officially withdrawn from the Paris Agreement; former frontrunners within the EU, such as Germany, France or the United Kingdom, are fighting on various domestic political fronts. Major emerging economies such as China and India are not yet willing to fill this gap. However, the 24th Climate Conference has also showcased encouraging dynamic climate policy development in numerous countries and at the subnational level. Local governments claim a leading role in the implementation of the Paris Agreement and will meet in Heidelberg in early summer to underpin this role.

On 11 July 2018, the UN Security Council held debates on climate-related security risks (for details see Section "Security Council").

The Global Climate Action Summit was held in September 2018 in San-Francisco. It brought together many non-state and subnational actors actively involved in addressing climate-related problems.

In 2018, the Global Commission on Adaptation (GCA) was launched to bring scale and speed to climate adaptation solutions. It is led by former UN Secretary-General Ban Ki-moon, Bill Gates, Co-Chair of the Bill and Melinda Gates Foundation, and World Bank CEO Kristali-

na Georgieva. It includes 17 convening countries and 28 commissioners, representing all regions and all sectors. The GCA aims to raise awareness of decision makers and the public about the opportunities of increased resilience to climate impacts and natural hazards; ensure that governments and businesses incorporate climate change risks into their social and economic development plans and investments; ensure that adaptation efforts help the world's poorest and most vulnerable; and raise the level of global leadership on the issue. In its first year, the Commission prepared a report explaining why adapting to climate risks and accelerated action is essential, describing new actions that should be taken and what must be done differently, and calling on governments, companies and citizens to act urgently. The GCA will present its findings and recommendations at the UN Climate Summit in September 2019. The Commission also will convene champions, coalitions, the private sector and civil society representatives to advance activities related to food security and rural livelihoods, global supply chains, cities, infrastructure, finance, social protection and nature-based solutions.

Source: https://sdg.iisd.org/news/globalcommission-launches-with-calls-to-accelerateclimate-adaptation/

In October 2018, the UN Intergovernmental Panel on Climate Change (IPCC) issued its Special Report on Global Warming of 1.5 °C. It has been described as the most important report ever published in the 30-year history of IPCC and an "ear-splitting wake-up call to the world." The new report made headline news around the world with its stark message that limiting warming to 1.5 °C would require unprecedented transitions in all aspects of society. The report stresses the huge benefits to human welfare, ecosystems and sustainable economic development in keeping warming to 1.5 °C compared to 2 °C, or higher.

https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement

Summary Table on International Climate Commitments of the Central Asian Countries

	Kazakhstan	Kyrgyzstan	Tajikistan	Turkmenistan	Uzbekistan
United Nations Fra	nited Nations Framework Convention on Climate Cha		ige (UNFCCC): approved on 9 May 1992; came into force on 21 March 1994	;; came into force on 21 $\cal N$	arch 1994
Signing	08.06.1992				
Ratification/ accession	17.05.1995	25.05. 2000 (a)	07.01.1998 (a)	05.06.1995 (a)	20.06.1993 (a)
Kyoto Protocol to I	UNFCCC: approved on 11	December 1997, entered	entered into force on 16 February	2005	
Signing	12.03.1999			28. 09.1998	20.11.1998
Ratification/ accession	19.06.2009	13.05.2003 (a)	29.12.2008 (a)	11.01.1999	12.10.1999
National Commur	nications (NC) under UNFC	၁၁၁			
	1NC - 05.11.1998 2NC - 04.06.2009 3-6NCs- 24.12.2013 7NC - 31.12.2017	1NC - 31.03.2003 2NC - 01.12.2008 3NC - 24.01.2017	1NC - <u>08.10.2002</u> 2NC - <u>31.12.2008</u> 3NC - <u>29.12.2014</u>	1NC - 11.11.2000 2NC - 29.11.2010 3NC - 05.01.2016	1NC - <u>22.10.1999</u> 2NC - <u>03.12.2008</u> 3NC - <u>21.02.2017</u>
National Focal Po	National Focal Points under UNFCCC				
	Ministry of Energy Resources	State Agency on Environment Protection and Forestry	Agency for Hydro- meteorology of the Committee for Environ- ment Protection	State Committee of Turkmenistan for Environment Protection and Land Resources	UzHydromet
Paris Agreement:	Paris Agreement: approved on12 December2015, enter		on4 November 2016		
Signing	02.08.2016	21.09.2016	22.04.2016	23.09.2016	19.04.2017
Ratification	06.12.2016		22.03.2017	20.10.2016	09.11.2018
Nationally Determi	iined Contributions under the Paris Ag	the Paris Agreement			
Data	06.12.2016		22.03.2017	21.10.2016	09.11.2018
Content	Unconditional target: (without support) 15% reduction in GHG emissions by 2030 compared to 1990 Conditional target: (with support) 25% reduction in GHG emissions by 31.12.2030 compared to 1990 Details	Unconditional target: (withoutsupport) reduction in GHG emissions in the range of 11.49-13.75% below BAU in 2030 Conditional target: (with support) reduction in the range of 29.00-30.89% below BAU in 2030	Unconditional target: (without support) not exceeding 80-90% of the 1990 level by 2030 Conditional target: (with support) not exceeding 65-75% of the 1990 level by 2030 Details	Conditional target: (with support) suspend the growth of GHG emissions by 2030 Details	Conditional target: (with support) decrease specific emissions of GHG per unit of GDP by 10% by 2030 from level of 2010 Details

Sea level will continue to rise well beyond 2100, when it is projected to be 26 to 77 cm higher than the 1986-2005 baseline under a 1.5 °C temperature increase, about 10 cm lower than for a global warming of 2 °C. The likelihood of an Arctic Ocean free of sea ice in summer would be once per century with global warming of 1.5 °C, compared with at least once per decade with 2 °C. With 1.5 °C, coral reefs are expected to decline by 70-90%, whereas more than 99% would be lost with 2 °C. Pathways limiting global warming to 1.5 °C with no or limited overshoot in temperature above that level would require rapid and farreaching transitions concerning land, energy, industry, as well as buildings, transport, and cities. Global net anthropogenic CO₂ emissions need to be declined by about 45% from 2010 levels by 2030, reaching net zero around 2050. This means that all remaining emissions must be balanced by the removal of CO₂.

In October 2018, UNEP issued the 9th edition of the <u>UN Environment Emissions Gap Report</u>. It assesses the latest scientific studies on current and estimated future greenhouse gas emissions and compares these with the emission levels permissible for the world to progress on a least-cost pathway to achieve the goals of the Paris Agreement. It includes the following key conclusions:

- Current commitments expressed in the NDCs are inadequate to bridge the emissions gap in 2030.
- Global greenhouse gas emissions show no signs of peaking.
- The gap in 2030 between emission levels under full implementation of conditional NDCs and those consistent with least-cost pathways to the 2°C target is 13 GtCO₂e.
- Countries need to strengthen the ambition of NDCs and scale up and increase effectiveness of domestic policy to achieve the temperature goals of the Paris Agreement.
- Non-state and subnational action plays an important role in delivering national pledges.
- Fiscal policy reform can play a key role in creating strong incentives for low-carbon investments and reducing GHG emissions.
- Accelerating innovation is a key component of any attempt to bridge the emissions gap, but it will not happen by itself.

Summary:

https://wedocs.unep.org/bitstream/handle/20.500. 11822/26879/EGR2018 ESEN.pdf?sequence=10 Yearbook of Global Climate Action 2018. The Marrakech Partnership for Global Climate Action, established at the 22nd session of the Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC), aims to mobilize action quickly and to reap the benefits in efficiency and effectiveness that come through partnerships and coordination between different actors. The Yearbook of Global Climate Action 2018 takes stock of what is happening on the ground to reveal progress and opportunities for increased action. The 2018 Yearbook shows that action is increasing, in terms of number, location and scale. Key messages for 2018: Global climate action by non-Party stakeholders is crucial to deliver existing NDCs and raise ambition. Parties and non-Party stakeholders acting together have the potential to put the world on a path to global warming of well below 2°C. To achieve this potential, this Yearbook identifies priorities for Parties in NDC and policy development and on international cooperation. For non-Party stakeholders, priorities include making and delivering on ambitious commitments and working with others to amplify the results. Together, Parties and non-Party stakeholders can deliver new and innovative financial and business models and develop and implement the technological solutions needed to transform to a zero-carbon and resilient economy.

The Global Commission on the Economy and Climate Report. The Global Commission on the Economy and Climate is a major international initiative to examine how countries can achieve economic growth while dealing with the risks posed by climate change. The Commission comprises former heads of government and finance ministers and leaders in the fields of economics and business, and was commissioned by seven countries - Colombia, Ethiopia, Indonesia, Norway, South Korea, Sweden and the United Kingdom – as an independent initiative. The New Climate Economy (NCE) is the Commission's flagship project. It provides independent and authoritative evidence on the relationship between actions which can strengthen economic performance and those which reduce the risk of dangerous climate change.

In September 2018, we released our latest report, Unlocking the Inclusive Growth Story of the 21st Century: Accelerating Climate Action in Urgent Times, which highlights the economic benefits of climate action across five sectors of the economy: clean energy systems, smarter urban development, sustainable land use, wise water management (see details below), and a

circular industrial economy. We are on the cusp of a new economic era: one where growth is driven by the interaction between rapid technological innovation, sustainable infrastructure investment, and increased resource productivity. This is the only growth story of the 21st century. The next 2-3 years are a critical window when many of the policy and investment decisions that shape the next 10-15 years will be taken. While recognizing the shortcomings of current economic models, analysis produced for this Report found that bold action could yield a direct economic gain of US \$26 trillion through to 2030 compared with business-as-usual. Seizing the economic benefits of low-carbon and resilient growth will only be possible if we act boldly over the next 2-3 years.

The Global Commission calls upon economic decision-makers in the public and private sectors to take the following actions immediately:

- First, governments should put a price on carbon and move toward mandatory climate risk disclosure for major investors and companies. The major economies, led by the G20, should put a price on carbon of at least US \$40-80 by 2020, with a predictable pricing pathway to around US \$50-100 by 2030, as recommended by the High-Level Commission on Carbon Pricing. Companies and investors should be required, as a matter of good corporate practice, to disclose their climate-related financial risks and how their business strategy is compatible with the Paris Agreement.
- Second, all economies should place much greater emphasis on investing in sustainable infrastructure as a central driver of the new growth approach. The first step is not about the money. Rather, it is to build stronger leadership and technical capacity to shape robust growth strategies, investment plans, and institutional structures that can align with sectoral policies and facilitate the flow of private investment to sustainable infrastructure.
- Third, the full power of the private sector and innovation needs to be harnessed. Private-public partnerships need to be put in place and capitalized in each major sector to pilot, scale and share learning around the deployment of new low-carbon and climate-resilient techno-

logies. We have plenty of examples about how to do this well (and badly). What is currently lacking is sufficient political and business leadership.

■ Fourth, a people-centred approach is needed to ensure lasting, equitable growth and a just transition. It is good economics and good politics. If managed well, the low-carbon transition offers the potential for new opportunities and more equitable growth. In developing and emerging economies, the low-carbon transition provides an opportunity to leap-frog the inefficient and polluting models of the past. All governments should establish clear Energy Transition Plans to reach net-zero energy systems.

Water - A Key Direction. Flowing through every part of our economy, water is a fundamental necessity for lives and livelihoods. Yet the world is not managing water well or making the most of it, due above all to failures of policies, governance, leadership and markets. The existing challenges include inadequate access, poorly managed risks and increasing competition for water resources. Irrigated agriculture already uses around 70% of available freshwater, and the world will need to produce 55-70% more food to feed its people by 2050. With demand in other sectors set to rise by 55% globally over the same period - mainly for electricity generation, manufacturing, and domestic use - competition is set to increase.

Climate change has the potential to amplify extremes and further disrupt the delicate balance between water demand and supply. Better governance, policy, and planning is urgently needed to allocate water resources and the risks and benefits arising from water more equitably, efficiently, and sustainably.

Accelerators:

- Governments should put in place robust water allocation policies and plans that establish the full value of water, protect the poor as well as ecosystems, and factor in population growth and a changing climate. The World Bank estimates that improved policies for water allocation could increase GDP in 2050 by 6% in some regions.
- Businesses should identify water risks, develop water-smart business models, and monitor progress in their operations and supply chains against contextrelevant targets. Targets to drive ambition

and innovation should be set contextually, according to the capacity of surrounding river basins to provide water and absorb pollution.

- Water users, including businesses, utilities, public agencies, and households, should collaborate via watershed protection schemes. Improving water management requires finding innovative ways to incentivize collective action, for example, by better allocating benefits and costs.
- Governments and regional organizations should promote tailored policy packages to reduce exposure, minimize losses from natural disasters, and increase resilience, at least cost. A wide range of policies and investments from improving water management to slum-upgrading, land zoning, and titling and investments in early warning, can reduce exposure and vulnerability of people and infrastructure before disaster strikes. Additional policies to improve financial inclusion and establish social safety nets, contingency funds, and insurance can increase resilience. Implemented globally, a comprehensive package of policies for disaster risk reduction and improved resilience could avoid losses of around \$100 billion per year.

Source: https://newclimateeconomy.report/2018/wpcontent/uploads/sites/6/2018/09/NCE 2018 FULLREPORT.pdf

The 50th Nobel Prize in Economic Sciences 2018 was awarded to William D. Nordhaus "for integrating climate change into long-run macroeconomic analysis" and Paul M. Romer "for integrating technological innovations into long-run macroeconomic analysis".

Source: www.nobelprize.org

In 2018, the revamped version of the Global Climate Action portal (NAZCA; http://climateaction.unfccc.int/) dedicated to climate actions of non-state stakeholders was launched. It is an online platform where companies, cities, subnational regions, investors and civil society organizationscan display their commitments to act on climate change focused on seven thematic sections (land use, oceans and coastal area, water, human settlements, transport, energy, and industry). As of March 2019, the portal includes 12,396 stakeholders representing 19,947 actions, of which 10 actions are presented in Kazakhstan, 5 actions – in Kyrgyzstan, and 1 action – in Tajikistan.

Juliana v. United States climate change lawsuit. The first case of its kind, Juliana v. the United States continued in 2018. 21 American teenagers aged from 9 to 20 filed a lawsuit against the US Government. Their complaint asserts that, through the government's affirmative actions that cause climate change, it has violated the youngest generation's constitutional rights to life, liberty, and property, as well as failed to protect essential public trust resources¹⁷.



Our children's trust. Juliana v. U.S. Climate Lawsuit. www.ourchildrenstrust.org/us/federal-lawsuit/

12.2. Caspian Sea: Special Legal Status

General information

The Caspian Sea is the world's largest inland water body, which lies at the interface of Europe and Asia. The area of the Sea is 393,000 km² and the maximum depth is 1,025 m. 130 rivers flow into the Caspian Sea, 9 of which have a delta-shaped mouth. The Volga, Terek, Sulak, Samur (Russia), Ural, Emba (Kazakhstan), Kura (Azerbaijan), Atrek (Turkmenistan), Sefid-Rud (Iran) are the largest rivers flowing into the Caspian Sea.

The coastline of the Caspian Sea is shared by five riparian states: Azerbaijan, Iran, Kazakhstan, Russia, and Turkmenistan. There are many oil and gas fields under development in the Caspian Sea region; shipping and fishery (sturgeon, bream, carp, pike-perch, sprat), as well as caviar extraction and seal hunting are also very well-developed.

In the Soviet times, activities in the Caspian Sea were regulated by the Soviet-Iranian treaties of 26 February 1921 and 25 March 1940. After the collapse of the Soviet Union, the status of the Caspian Sea was the subject of unresolved disagreements related to division of the Caspian shelf resources – oil and gas, and biological resources as well. For a long time, the riparian states have been negotiating the status of the Caspian Sea: Azerbaijan, Kazakhstan and Turkmenistan were insisting on dividing the Caspian Sea along the midline, and Iran was insisting on maintaining the Caspian Sea as a common-property resource based on the principle of condominium, while allowing the creation of five equal sectors (20% each).

Russia was supporting delimitation of the subsoil resources and shelf of the Caspian Sea but was against the division of its aquatic area, since it would have required a radical revision of the regime of economic use of this water body existing for the past 70 years¹⁸.

More than 20 years of negotiations and cooperation

In 1996, a Special Working Group was created (SWG) at the level of Deputy Ministers of Foreign Affairs of the "Caspian Five States". Since then, 52 meetings of SWG, more than ten meetings of the Ministers of Foreign Affairs and four Presidential Summits in Ashgabat (2002), Teheran (2007), Baku (2010), and Astrakhan (2014) have been held.

On 4 November 2003, the representatives of five littoral states signed the <u>Framework Convention for the Protection of the Marine Environment of the Caspian Sea</u> in Teheran. The purpose of the Convention is "to protect marine environment of the Caspian Sea from pollution, including protection, conservation, restoration, and sustainable and rational use of its biological resources".

On 20 July 2018, the Protocol on Environmental Impact Assessment in a Transboundary Context to this Framework Convention was signed in Moscow¹⁹.

On 18 November 2010, an Agreement on cooperation in the field of security in the Caspian Sea was signed. To this Agreement, three Protocols were signed on cooperation for fighting terrorism and organized crime and on interaction of frontier agencies.

On 29 September 2014, an Agreement on Conservation and Rational Use of Aquatic Bio-Resources of the Caspian Sea was signed. The Agreement entered into force in 2018.

Since it was impossible to resolve all disagreements in the format of "Five", some of the Caspian littoral states were negotiating in biand trilateral formats. Particularly, the controversial issues between Russia, Kazakhstan and Azerbaijan were resolved through the documents signed in 1998 and 2001 on delimitation of bed and subsoil resources of the Caspian Sea (based on the documents, water surface remains in common use; delimitation

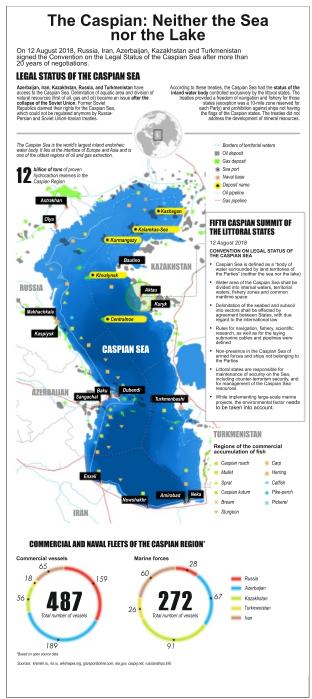
¹⁸ Five countries agree to share the resource-rich Caspian Sea after more than two decades of dispute (in Russian), https://tass.ru/mezhdunarodnaya-panorama/3450294

¹⁹ Protocol on Environmental Impact Assessment in a Transboundary Context to the Framework Convention for the Protection of the Marine Environment of the Caspian Sea, http://www.tehranconvention.org/lmG/pdf/PROTOCOL ON ENVIRONMENTAL IMPACT ASSESSMENT IN A TRANSBOUNDARY CONTEXT EN.pdf

follows the agreement on the basis of the midline method). In 2003, Russia, Kazakhstan and Azerbaijan signed an Agreement on junction of the demarcation line of adjacent areas of the Caspian Sea bed. According to the Agreement, approximately, 19% of the seabed

was allotted to Russia, 29% was allotted to Kazakhstan, and about 20% was allotted to Azerbaijan. In 2014, an Inter-State Agreement on delimitation of the bed of the Caspian Sea was also signed between Kazakhstan and Turkmenistan.

Fifth Caspian Summit and Convention on the Legal Status of the Caspian Sea



Source: www.ria.ru (in Russian)

The Fifth Caspian Summit was held on 12 August 2018 in Aktau, where the Heads of all Caspian littoral State participated. A key result of the high-level event was the signature by the leaders of five states of the basic treaty – the Convention on the Legal Status of the Caspian Sea²⁰. This fundamental document creates a new legal regime for the Caspian Sea, which meets modern requirements and is aimed at further strengthening of cooperation between the states. The Convention defines and regulates the rights and obligations of the Parties with respect to the use of the Caspian Sea, including its waters, bed, subsoil resources, natural resources and airspace over the Sea.

The main provisions of the Convention are as follows:

- Special Legal Status, under which the name "Caspian Sea" is retained, but it will be recognized as neither sea nor a lake and is defined as "a body of water surrounded by the land territories of the Parties" (Article 1);
- The water area of the Caspian Sea shall be divided into internal waters, territorial



²⁰ Convention on the Legal Status of the Caspian Sea, http://en.kremlin.ru/supplement/5328

waters, fishery zones and the common maritime space (Article 5);

- Each Party shall establish the breadth of its territorial waters up to a limit not exceeding 15 nautical miles (Article 7) and a 10 nautical miles-wide fishery zone adjacent to the territorial waters (Article 9);
- Delimitation of the Caspian Sea bed and subsoil into sectors shall be effected by agreement between States with due regard to the generally recognized principles and norms of international law (Article 8);
- Non-presence in the Caspian Sea of armed forces not belonging to the Parties (Article 3);
- Ships flying the flags of the Parties shall enjoy freedom of navigation beyond the outer limits of the territorial water of the Parties (Article 10), may navigate through territorial waters (Article 11), and shall have the right to free access from the Caspian Sea to other seas and the Ocean, and back;
- Each Party shall have the exclusive right to regulate, authorize and conduct marine scientific research related to aquatic biological resources in its fishery zone, as well as marine scientific research related to the exploration and

exploitation of seabed and subsoil resources (Article 13);

- The Parties may lay submarine cables and pipelines on the bed of the Caspian Sea, on the condition that their projects comply with international environmental standards and requirements (Article 14);
- The Parties shall undertake to protect and preserve the ecological system of the Caspian Sea and all elements thereof; any activity damaging the biological diversity of the Caspian Sea shall be prohibited (Article 15);
- The Parties shall cooperate in combating international terrorism and financing thereof, trafficking in arms, drugs, psychotropic substances and their precursors, as well as poaching, and in preventing and suppressing smuggling of migrants by sea and other crimes in the Caspian Sea (Article 17);
- The Parties shall establish a mechanism of five-party regular high-level consultations under the auspices of their Ministries of Foreign Affairs (Article 19).

During the Fifth Caspian Summit, a number of five-sided documents were signed in various fields of cooperation in the Caspian Region. Following the results of the Summit, the joint Communique has been adopted²¹.

Other events related to the Caspian Sea in 2018

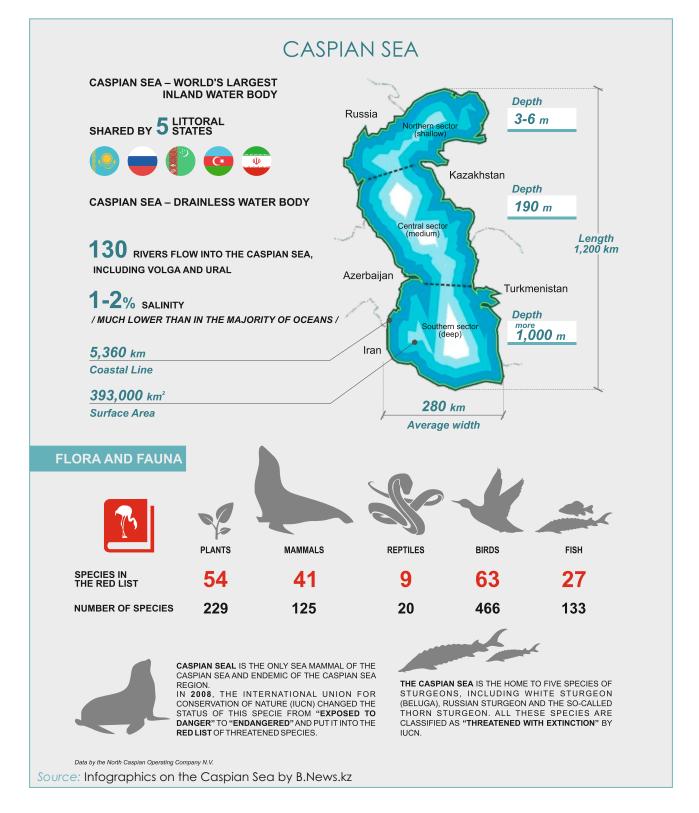
In course of 2018, the Caspian littoral states held a number of events that were aimed at preservation and rational use of the Caspian aquatic bio-resources.

- On 5-16 March, the International Seminar -"Caspian Sea Sustainable Development and Management" was held in the "Awaza" tourist zone (Turkmenistan), according to the Memorandum of Understanding and Cooperation signed between the Public Entity for the Caspian Sea Issues at the President of Turkmenistan and the International Ocean Institute;
- Seminar on implementation of the Protocol concerning Regional Preparedness,

- Response and Cooperation in combating Oil Pollution Incidents (Aktau Protocol) was held on 18-20 June in Baku with support of the International Maritime Organization and UNEP;
- Final 52nd Meeting of the Ad Hoc Working Group for Development of the Convention on the Legal Status of the Caspian Sea at the level of Deputy Foreign Ministers of the Caspian Littoral States was held on 10 August in Aktau. The Parties reviewed preparation to the Fifth Caspian Summit, discussed and agreed the Agenda for the Meeting of the Foreign Ministers of the Caspian Littoral States;

²¹ Joint Communiqué of the Fifth Caspian Summit, http://kremlin.ru/supplement/5330

- The First International Conference "The Caspian Sea in the 21st Century: Cooperation and Security" was held on 28th of September in Astana. Following the discussion, the participants agreed to conduct annually such international conferences in Astana, as well as to organize the Caspian International Investment and Economic Forum every two years in one of the Caspian states;
- The 23rd Session of Coordinating Committee on Hydrometeorology and Pollution Monitoring of the Caspian Sea (CASPCOM) was held on 30-31 October in Ashgabat. The participants discussed the progress of work of CASPCOM and National Hydrometeorological Services in 2017-2018, as well as the implementation of the Intergovernmental comprehensive program on hydrometeorology of the



Caspian Sea for the period until 2023, strengthening of cooperation with international organizations and other matters;

- The 11th International Economic Forum "<u>Caspian Dialogue 2018</u>" was held in Moscow on 14th of November;
- From November 27 to 29, the second session of the Commission for the Conservation and Rational Use of Aquatic Biological Resources and Management of Shared Stocks of such resources of the Caspian Sea was held in Baku. The Commission is designed to coordinate conservation, reproduction and rational use of shared aquatic biological resources, determine annually the total
- allowable catch and allocate national quotas. Delegations from all Caspian littoral states participated in the work of the Commission;
- The International Roundtable "Future of the Caspian. Research projects and studies" was held on 28-29 November in Moscow in form of 6 sessions: "Science for sustainable development of the Caspian Region"; "The Caspian Region in the context of global change"; "Caspian Dynamics in the context of global change"; "Eco-system and bio-resources of the Caspian Sea"; "Hazardous phenomena in the Caspian Region"; and, "Hydrocarbon and other energy resources of the Caspian Region. Impact of their mining on the state of the marine environment".

12.3. Sustainable Development Goals: Tracking the Progress

12.3.1. High-Level Political Forum 2018

More than 125 Heads and Deputy Heads of State and Government, Ministers, Vice-Ministers and other Ministerial level officials, and over two thousand representatives from agvernments. UN system and other organizations, civil society, NGOs and the private sector participated in the annual 2018 High-level Political Forum (HLPF) on 9-18 July to take stock of progress on the Sustainable Development Goals (SDGs). The High-Level Political Forum is the central UN platform for monitoring and evaluating the implementation of the 2030 Agenda for Sustainable Development. They discussed progress, successes, challenges and lessons learned on the road to a fairer, more peaceful and prosperous world and a healthy planet by 2030.

This year's forum, under the theme "Transformation towards sustainable and resilient societies," concluded with the adoption of a Ministerial Declaration. 46 countries presented



their Voluntary National Reviews on their efforts to achieve the 2030 Agenda: 15 countries from Europe, 13 from Asia and Pacific, 9 from Africa, 8 from Latin America and Caribbean basin, and 1 from North America. The Forum also reviewed in depth six out of the 17 SDGs: Water and sanitation for all (SDG 6); sustainable and modern energy for all (SDG 7); cities and human settlements (SDG 11); sustainable consumption and production patterns (SDG 12); sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss (SDG 15); and global partnership for sustainable development (SDG 17).

Source:

https://sustainabledevelopment.un.org/hlpf/2018

12.3.2. Progress towards SDG 6 on Water

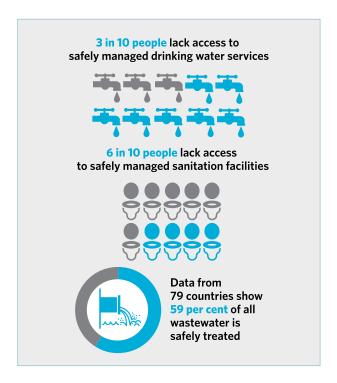
The Sustainable Development Goals Report 2018 reviews progress in the third year of implementation of the 2030 Agenda for Sustainable Development. While people overall are living better lives than they were a decade ago, progress to ensure that no one is left behind has not been rapid enough to meet the targets of the 2030 Agenda.



A brief summary of the status of implementation of SDG 6 on water is provided below:

Goal 6: Ensure Access to Water and Sanitation for all

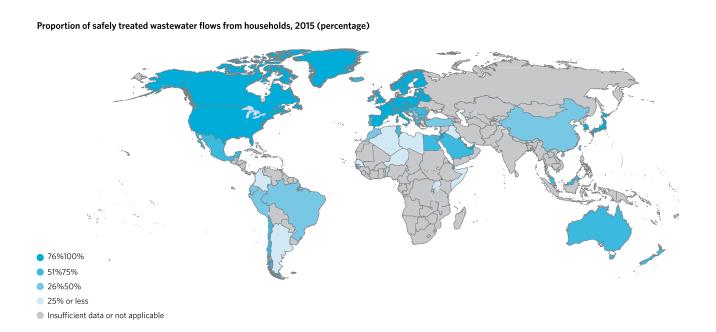
In 2015, 29 per cent of the global population lacked safely managed drinking



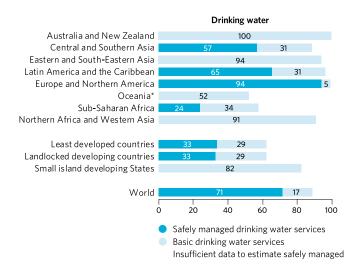
water supplies, and 61 per cent were without safely managed sanitation services. In 2015, 892 million people continued to practice open defecation;

- In 2015, only 27 per cent of the population in LDCs had basic handwashing facilities;
- Preliminary estimates from household data of 79 mostly high- and high-middleincome countries (excluding much of Africa and Asia) suggest that 59 per cent of all domestic wastewater is safely treated:
- In 22 countries, mostly in the Northern Africa and Western Asia region and in the Central and Southern Asia region, the water stress level is above 70 per cent, indicating the strong probability of future water scarcity;
- In 2017-2018, 157 countries reported average implementation of integrated water resources management of 48 per cent;
- Based on data from 62 out of 153 countries sharing transboundary waters, the average percentage of national transboundary basins covered by an operational arrangement was only 59 per cent in 2017.

Untreated household wastewater poses a risk to both public health and the environment



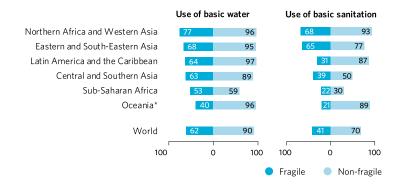
A majority of the world's population still lack safe sanitation, and 3 in 10 lack safe drinking water Proportion of the population using safely managed and basic drinking water, sanitation and hygiene services, 2015 (percentage)



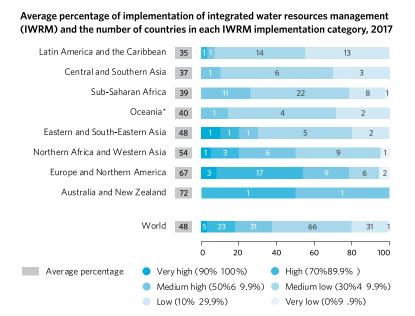
Note: Oceania* refers to Oceania excluding Australia and New Zealand, throughout the publication.

Conflict, violence and instability are curtailing progress on water and sanitation

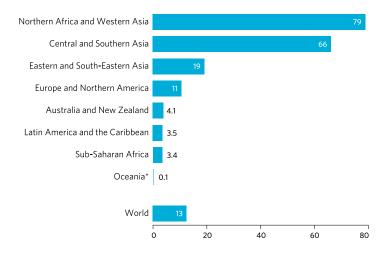
Proportion of the population using basic water and basic sanitation services in fragile and non-fragile states, 2015 (percentage)



Redoubled efforts are needed in most countries to better manage their water resources

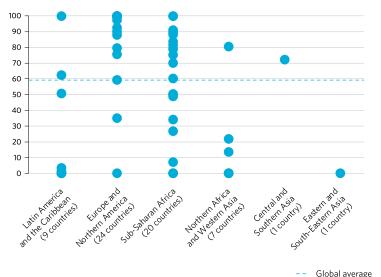


Level of water stress: freshwater withdrawal as a proportion of available freshwater sources, around 2014 (percentage)



Northern Africa and Western Asia are hardest hit by water stress, indicating the strong probability of future water scarcity

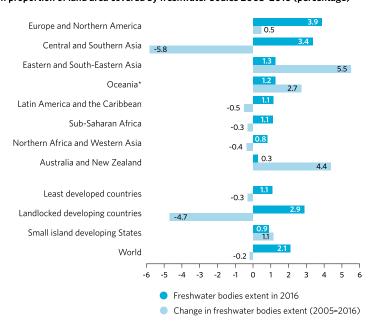
Proportion of transboundary basin areas with an operational arrangement for water cooperation, 2017 (percentage)



Cooperation among countries sharing rivers, lakes and aquifers needs to accelerate

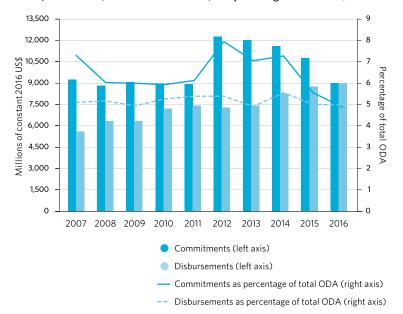
Note: No data available for Oceania*.

Proportion of land area covered by freshwater bodies, 2016 and change in proportion of land area covered by freshwater bodies 2005–2016 (percentage)



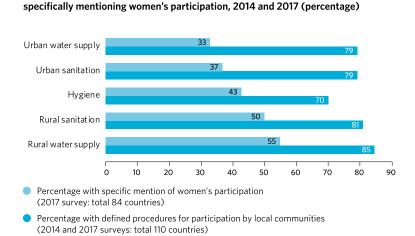
Lack of abundant surface water in the poorest countries heightens their vulnerability to climate change and water scarcity

Funding commitments to the water sector dropped by more than 25 per cent from 2012 to 2016 Official development assistance commitments and disbursements to the water sector, 2007–2016 (millions of constant US\$ and percentage of total ODA)



Over half of countries have policies or procedures for the participation

of women in rural water



Proportion of countries with defined procedures in law or policy for participation by service users/communities, and proportion of countries with policies

Source: https://unstats.un.org/sdgs/report/2018/

12.3.3. Focus on SDG 15: Forest Restoring and Desertification Combating

Forests cover 30.7 per cent of the Earth's surface and, in addition to providing food security and shelter, they are key to combating climate change, protecting biodiversity and the homes of the indigenous population. At the current time, thirteen million hectares of forests are being lost every year while the persistent degradation of drylands has led to the desertification of 3.6 billion hectares. Between 2010 and 2015, the world lost 3.3 million hectares of forest areas. Due to drought and desertification, 12 million hectares are lost each year (23 hectares per minute). Within one year, 20 million tons of grain could have been grown.



Deforestation and desertification – caused by human activities and climate change – pose major challenges to sustainable development and have affected the lives and livelihoods of millions of people in the fight against poverty. One of the Sustainable Development Goals is to address these issues. SDG 15 is called "Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land

degradation and halt biodiversity loss". Specific tasks set to achieve this goal include, but are not limited to, the following:

- 15.1 By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements:
- **15.2** By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation alobally;
- **15.3** By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world.

Forest plays an important role in the 2030 Agenda. It is a source of livelihood and it maintains bio-

diversity and mitigates climate change. Consequently, an increase in forest areas contributes to the achievement of virtually all SDGs, particularly 1, 2, 6, 7, 9, 10, 11, 13 and 17.²²

Progress towards SDG 15

According to the **UN Report**, implementation of Goal 15 is showing some encouraging signs. Forest loss has slowed. A growing number of forest areas are being sustainably managed, integrating policies and practices that protect forest ecosystems and address drivers of degradation. All regions continue to make progress on conferring official protection status to areas critical to global biodiversity. However, land degradation is increasing due to competing pressures for food, energy and shelter. Biodiversity loss is occurring at an alarming rate. In addition, invasive species, the illicit poaching and trafficking of wildlife, and falling trends in ODA in support of biodiversity continue to thwart efforts to protect and restore vital ecosystems and species. Accelerated action is urgently needed to preserve and promote the sustainable use of ecosystems on which all life depends.

Full implementation of sustainable forest management plans is needed to halt deforestation

Progress toward sustainable forest management dashboard Proportion of forest area within legally Proportion of Forest area annual Above-ground forest area under biomass stock established Forest area net change rate, a long-term forest change from 2005-2010 in forest. protected areas, management plan, certified. change from change from change from change from 2015 to 2017 to 2010-2015 2010 to 2015 2010 to 2015 2005 to 2010 Region Central and Southern Asia Eastern and South-Eastern Asia \mathbf{A} \mathbf{A} \mathbf{A} Northern Africa and Western Asia À \mathbf{A} A Sub-Saharan Africa \mathbf{A} lack \blacktriangle \mathbf{A} Europe and Northern America A Latin America and the Caribbean Oceania* A A A World

Positive change

No/small change

▼ Negative change

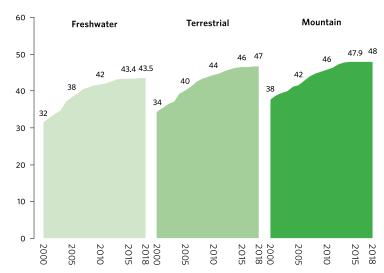
Note: The forest area annual net change rate is calculated using a compound annual change formula.

²² www.un.org/sustainabledevelopment/ru/biodiversity/

More areas critical to global biodiversity are being protected.

Areas critical to global biological diversity are known as key biodiversity areas (KBAs). The proportion of KBAs covered by protected areas continues to increase in freshwater, terrestrial and mountain ecosystems.

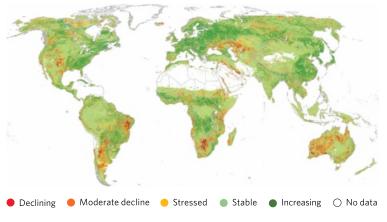
Average proportion of each freshwater, terrestrial and mountain KBA that is covered by protected areas, 2000–2018 (percentage)



Land degradation threatens the livelihoods of over one billion people.

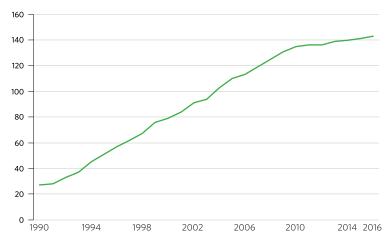
From 1999 to 2013, approximately one fifth of the Earth's land surface covered by vegetation showed persistent and declining trends in productivity, primarily due to land and water use and management. Up to 24 million square kilometers of land are affected.

Global map of land productivity, 1999-2013



Note: The map shows five classes of persistent land productivity trajectories over the period 1999–2013. Land productivity is an essential variable for detecting and monitoring active land transformations typically associated with land degradation processes. It can be expressed as an equivalent of terrestrial net primary productivity per unit of area and time, and reflects the overall capacity of land to support biodiversity and provide ecosystem services.

Action to combat invasive species is intensifying, though they remain a major contributor to biodiversity loss. Cumulative number of countries reporting to the Convention on Biological Diversity on national legislation relevant to the prevention or control of invasive alien species (1990–2016)



Source: https://unstats.un.org/sdgs/report/2018/

New York Declaration on Forests and Reviewing Progress towards its Goals in 2018

The New York Declaration on Forests (NYDF) was adopted on 23 September 2014 at the Climate Summit in New York, which was attended by Heads of State and Government and business leaders. The participants pledged to cut natural forest loss in half by 2020 and end it by 2030, including through afforestation. It calls for restoring 350 million hectares of forests and croplands of an area larger than India.

Meeting the goals of the Declaration is expected to cut between 4.5-8.8 billion tons of carbon pollution every year.

The NYDF Assessment Partners annually track progress toward meeting the goals of the Declaration. The 2018 brief assessments of Goals 1-10 find that we are not on track to meet the goal to halve natural forest loss globally by 2020. The focus report on Goal 10 finds slow progress in strengthening forest governance and empowerment.

Source:

https://forestdeclaration.org/wpcontent/uploads/2018/11/20181129-NYDF-2018-Summary.pdf

United Nations Strategic Plan for Forests 2017–2030

The agreement on the first-ever UN Strategic Plan for Forests was forged at a special session of the UN Forum on Forests held in January 2017 and provides an ambitious vision for global forests in 2030. The plan was adopted by the UN Economic and Social Council on 20 April 2017, and was subsequently adopted by the UN General Assembly on 27 April 2017.

- The Strategic Plan features a set of six Global Forest Goals and 26 associated targets to be reached by 2030, which are voluntary and universal.
- It includes a target to increase forest area by 3% worldwide by 2030, signifying an increase of 120 million hectares, an area over twice the size of France.

It builds on the vision of the 2030 Agenda and recognizes that real change requires decisive, collective action, within and beyond the UN System.

Resolutions and Documents

General Assembly Resolution 71/285: United Nations Strategic Plan for Forests 2017-2030 A/RES/71/285 | English |

ECOSOC Resolution 2017/4: United Nations Strategic Plan for Forests 2017-2030 and quadrennial program of work of the United Nations Forum on Forests for the period 2017-2020 E/RES/2017/4 | English |

Report of the Special Session of the UN Forum on Forests (20 January 2017) E/CN.18/SS/2017/2 | English |

The State of the World's Forests 2018

In 2018, FAO published the report on "The State of the World's Forests 2018", which highlights that by halting deforestation, managing forests sustainably, restoring degraded forests and increasing the global forest area, potentially damaging consequences for the planet and its people can be avoided. While the importance of forests and trees to a healthy, prosperous planet is universally recognized, the depth of those roots may be greater than imagined. They play a crucial role in ensuring food security, drinking water supply, renewable energy and rural economic development.

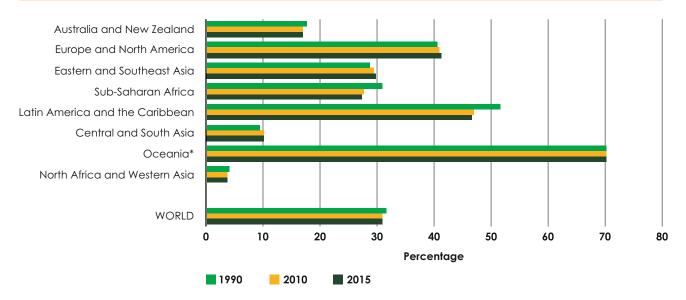
The Global Forest Resources Assessment found that the world's forest area decreased from 31.6 per cent of the global land area to

30.6 per cent between 1990 and 2015, but that the pace of loss has slowed in recent years (see Picture).

The report also underlines a **particular role of forests for water security**. More than one-third of the world's population lives in drylands, which account for 35 per cent of global land area. These populations are dependent on dryland forests and trees outside forests for their food security, livelihoods, and water security.

These dryland tree systems are well adapted to arid conditions and maximize the little precipitation available. In addition, they have expansive root systems that improve groundwater recharge through preferential flow, a

Forest Area as a Proportion of Total Land Area in 1990, 2010 and 2015



NOTE: *Excluding Australia and New Zealand SOURCE: Based on UN, 2017a

process whereby water flows through large pores in the soil created by roots and soil fauna. The trees also reduce water loss from evaporation from the soil, and maintain its health by reducing erosion and adding nutrients through leaf litter and organic matter. Tree density, canopy cover and the spatial distribution of trees in dryland areas are key variables that affect hydrology. The balance between the positive effects of the trees (higher infiltration and preferential flow) and their negative effects (higher evapotranspiration) needs to be taken into account in their management, using appropriate techniques such as thinning and pruning. In this case, 5-10 per cent tree cover was found to improve water availability.

Key messages of the report are as follows:

 To achieve our global goals, urgent action is needed to sustain the planet's forests;

- The branches of forests and trees reach out across the SDGs:
- It is time to recognize that food security, agriculture and forestry can no longer be treated in isolation;
- To reach those furthest behind first, we must go down the forest path and empower agents of change;
- Landscape approaches balance sustainability;
- Coherent policy frameworks encourage partnerships and stakeholder engagement in forests;
- Healthy cities need trees;
- Evidence is the key in achieving recognition of the true value of forests in the 2030 Agenda.

Source: http://www.fao.org/3/i9535en/i9535en.pdf

Forest and Water on a Changing Planet: Vulnerability, Adaptation and Governance Opportunities. A Global Assessment Report

More than 50 scientists from 20 countries contributed to the major assessment of the climate-forests-water-people link, which was carried out by the Global Forest Expert Panels (GFEP). In 2018, GFEP launched the report "Forest and Water on a Changing Planet: Vulnerability, Adaptation and Governance Opportunities", which constitutes the most comprehensive sys-

tematic scientific syntheses on the interactions between forests and water on the global level to date. Presenting the results of the sixth global scientific assessment undertaken in the framework of GFEP, the report provides a structured synthesis on the state of the knowledge on the forest-water relationship. Trees and people both need water. With a growing global population and continued forest loss and degradation – a key question becomes: are trees and people competitors or friends? The relationship between forests, trees and water is an issue of considerable complexity and uncertainty, but of high priority for both people and the environment. Forests and trees are important modulators of water flows, with water flows being among the most prominent determinants of human health and wellbeing. However, as the rate of climate change and the uncertainty of climatic variability continue to increase, the relationship between forests and water flow will also change. Would it help to plant more trees? Would this make water scarcity worse? Does it matter what type of trees? Does it matter where and how they are integrated into the landscapes? Are floods and droughts linked? To respond to these concerns, this assessment focuses on three key questions:

- 1) "Do forests matter?": To what degree, where and for whom, is the ongoing change in forests and trees outside forests increasing (or decreasing) human vulnerability by exacerbating (or alleviating) the negative effects of climate variability and change on water resources?
- 2) "Who is responsible and what should be done?": What can national and international governance systems and co-investment in global commitments do in response to changes in water security?
- 3) "How can progress be made and measured?": How can the UN SDG framework of Agenda 2030 be used to increase the coherence and coordination of national responses in relation to forests and water across sectors and from local to national and international scales?

The GFEP on Forest and Water recognized that the answers to the three questions would depend on the region of focus and require a timeframe and resources beyond those available at the time. However, the Panel presented 10 key conclusions and their implications intended to inform relevant international policy processes such as the 2030 Agenda for Sustainable Development and related SDGs.

Conclusions and their implications for decision-makers

1. Water is central to all 17 SDGs and ambitions. Governments and other stakehol-

ders that want to achieve the SDGs need to understand the centrality of water and its relations with social, environmental and economic outcomes. Increasingly, it is recognized that SDGs cannot be dealt with individually.

- 2. A systems approach to climate-forest-water-people relations that integrates hydrological processes and their interactions at all scales is needed. Limited public understanding of complex ecosystem interactions prevents rational decision-making and can lead to unintended consequences.
- 3. Forests, especially natural forests, contribute to the resilience of water supply for humans in the face of global change. Investments in the preservation of existing native forests are needed as part of a multiple disaster prevention strategy, as well as to improve resilience in the face of increasing risk.
- 4. Forests can be managed for resilience of water supplies to enable adaptation to change if locally relevant data and resources are available. Investments in data collection and interpretation are essential to support evidence-based risk management planning and adaptation.
- 5. Multiple water-related objectives across the portfolio of SDGs present new challenges for policymakers and managers of forests and landscapes with partial tree cover. New institutional responses are needed to tackle multiple water-related objectives across the portfolio of SDGs, taking a multiple benefits approach.
- 6. International and regional institutional and governance frameworks can play a key role in optimizing climate-forest-water management. New or improved levels of collective action and coordination are needed, including those that coordinate across sectors and across spatial scales.
- 7. A clear policy gap in climate-forest-water relations exists, waiting to be filled. Forest-water relations deserve at least as much policy attention, from local to global scales, as forest-carbon relations.
- 8. Regulations and rights-based approaches to climate-forest-water relations provide an essential foundation for innovation in forest-water governance. Incentive-based mechanisms present opportunities for coordination of interests and concerns in climate-forest-water

management but must respect the rights of local, indigenous and other vulnerable communities.

9. To successfully achieve SDGs, social and environmental justice, along with equity targets, must be integrated into climate-forest-water policies and management strategies. Already marginalised and vulnerable communities should not be exposed to further risks; opportunities to improve community health and well-being need to be explored when developing forest-water adaptive management strategies.

10. The global nature of the current assessment limited the scope to be quantitative and geographically explicit. More quantitative regional-scale case studies that include atmospheric relations, surface and groundwater flows are needed that can be extrapolated to other areas with different social and economic conditions.

Source: www.iufro.org/science/gfep/forestsand-water-panel/report/

Forests and Water - Valuation and Payments for Forest Ecosystem Services

In 2018, FAO and UNECE jointly published the study "Forests and Water – Valuation and payments for forest ecosystem services", which is aimed to further improve our understanding about the ways in which payments for ecosystem services schemes can be applied to forests for the mutual benefit of both humans and the environment. This study contains the most comprehensive currently available database of case studies on water-related payment for forest ecosystem services schemes in the UNECE region. A total number of 259 schemes were identified in 26 EU countries. EU and North America have the highest number of such schemes. Among the national authorities in Eastern Europe, Caucasus and Central Asia, there is a limited interest for PWS approaches and economic instruments in general. However, an unconventional case demonstrating payment for ecosystem services is found in the Chon-Aksuu watershed (Issyk-Kul region, Kyrgyzstan). The problem addressed by the scheme is overgrazed pasture and degraded forests, which is leading to erosion and increased levels of suspended sediments in rivers, and lower water quality. This resulted in the reforestation of 14 hectares, representing 37,000 seedlings of spruce and birch trees in mountain areas, and poplar and willow trees in the valley, which amounted to a total contribution of ecosystem services beneficiaries of about \$9,600.

Analysis of diverse case studies shows that watershed services (PWS) schemes can provide important co-benefits, such as carbon mitigation, biodiversity conservation and social benefits. Key recommendations:

Establish platforms for mutual understanding of PES principles and practices to

ensure that key authorities responsible for policy-making – including finance and tax authorities – are more forcefully engaged in the dialogue on the development of new forest-related PWS schemes.

- Promote a legal framework that provides guidance and support for forest-related PWS scheme designs that are adapted and appropriate for the local level.
- Strengthen appropriate scientific knowledge, technical competencies and skills, as well as foster stakeholder consultation and participation to overcome limitations in defining, measuring and economically assessing forest-related watershed services.
- Define sound monitoring systems by identifying clear proxy indicators and ecosystem service metrics.
- Focus on ecosystem service bundling for cost-effectiveness, recognizing that forests are a single ecosystem that provide multiple related services that can be combined in a single credit.
- Incorporate measures that fully recognize the potential limitations and challenges inherent in economic valuation, taking account of the multiplicity of values and the potential exclusion of local communities. Equally, the structural factors influencing PES outcomes need to be taken into consideration.

Source:

www.unece.org/fileadmin/DAM/timber/publication s/sp-44-forests-water-web.pdf

Global Landscapes Forum and Proposed UN Decade on Ecosystem Restoration

UNEP Headquarters hosted the <u>Global Landscapes Forum</u> (29-30 August, Nairobi, Kenya).

At the Forum, the <u>Global Partnership on</u> <u>Forest and Landscape Restoration</u> presented its new report "<u>Restoring Forests and Landscapes:</u> <u>the Key to a Sustainable Future</u>".

The Report discusses how ambitious goals for forest and landscape restoration can be

achieved, although there is no multi-faceted approach to forest and landscape restoration.

The Forum also discussed <u>Salvador's proposal</u> to approve the period 2020-2030 as the UN Decade on Landscape Connectivity and Ecosystem Restoration. Outcomes of the Forum are available on:

www.globallandscapesforum.org/wpcontent/uploads/docs/GLF%20Nairobi%20-%20Outcome%20statement_v06.pdf

Over 2.5 million hectares committed to the Bonn Challenge by the Caucasus and Central Asia



Over 2.5 million hectare of forest landscape will be restored by countries in the Caucasus and Central Asia under the Bonn Challenge by 2030. The commitment was made by Armenia, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan at the first Ministerial Roundtable on Forest Landscape Restoration and the Bonn Challenge in the Caucasus and Central Asia, held on 21-22 June 2018 in Astana, Kazakhstan. The Bonn Challenge is a global effort to bring 350 million hectares of the world's deforested and degraded land into restoration by 2030. It was launched in 2011 by Germany and the International Union for Conservation of Nature (IUCN).

The meeting adopted the Astana Resolution, committing the region to go beyond 2.5 million ha, and strengthen partnerships and regional cooperation to this end. The Ministers agreed to: (i) Identify degraded lands within our respective countries and work to restore and afforest them by 2030; (ii) Assess the national potential for forest landscape restoration; (iii) Reinforce regional cooperation; (iv) Call on development partners, international finance institutions and the private sector, to support efforts and investment at the national and regional level; (v) Cooperate among interested partners to develop a strategy for the financing; (vi) Periodically assess our respective efforts through alignment with the Bonn Challenge Barometer of Progress.

Significant progress in forest landscape restoration has already been achieved in many of the countries, for example the green belts around Astana and Ashgabat, and the extensive afforestation of the dried out bed of the Aral Sea.

"In the period between 1997 and 2008, Kazakhstan established forests on an area of over 83,000 ha around the city of Astana. This is one of our country's many initiatives aimed at the creation and restoration of forest landscapes. By 2021 the green belt surrounding Astana will exceed 100,000 ha", said Yerlan Nysanbayev, Deputy Minister of Agriculture of Kazakhstan. In the Caucasus and Central Asia, forests near settlements, mining sites, riparian forests, and forests on slopes require urgent attention.

However, taking into account the scale of the restoration challenge, it is of great importance to mobilize internal and external resources to increase forest areas whilst improving livelihoods. Committing to and implementing national pledges under the Bonn Challenge can therefore boost countries' efforts as they progress towards the goals of the 2030 Agenda for Sustainable Development and their national commitments under the Paris Agreement. National commitments under the Bonn Challenge can also help to provide a coherent policy investment framework for restoration, and support countries in reaching other targets including the Aichi Biodiversity Targets and the Global Forest Goals.

Source: http://www.fao.org/europe/news/detail-news/en/c/1142410/

Afforestation on the Dried Bed of the Aral Sea in Uzbekistan

The area of the dried bed of the Aral Sea within the Republic of Uzbekistan is about 3.4 million hectares, of which about 2 million hectares are suitable for afforestation, according to the GEF Agency of IFAS. Afforestation, namely, plantation of drought-tolerant plants and fixation of shifting sand dunes in the South Aral region (or South Prearalle) have been started by local forest farms as early as in the 1980s, when the Aral Sea was rapidly shrinking.

Since 2000, international organizations, specifically, GIZ, IFAS, the Ecological Fund of Japan, France, etc. have been taking part in this activity.

For the last 18 years, afforestation in South Priaralie was undertaken on about 740,000 hectares, including 350,700 hectares on the dried seabed. The work was financed mainly from the state budget of the Republic of Uzbekistan. A contribution of the international organizations was quite limited: GIZ financed afforestation on 27,000 hectares; non-governmental organization "Kofütis" (France) financed relevant activities on 1,500 hectares; and, IFAS allocated funds for 20,000 hectares.

Based on the results of 9 ground-based expeditions conducted in 2005-2011 by SIC ICWC with the assistance of Germany, it was revealed that in addition to afforestation undertaken during the abovementioned period of time, self-organized vegetation appeared on an area of approximately 200,000 hectares of the dried bed of the Aral Sea.

In August 24, 2018, at the Summit of the Heads of IFAS founder-states in Turkmenbashi, the President of the Republic of Uzbekistan proposed to activate afforestation on the dried

bed of the Aral Sea. In November 2018, the Government approved the List of priority national programs and projects on organization of regular afforestation on the dried seabed to fix shifting sands and prevent salt and dust storms. According to the Government Decree "On measures to accelerate the creation of "green cover" – protective forest plantations on the dried bed of the Aral Sea" (No.132 of 15 February 2019), large-scale activities will be undertaken on the dried seabed and in the Republic of Karakalpakstan. During 2019, 100 billion sums will be allocated in stages from the state budget to this end.

As of 1 April 2019, afforestation has already been completed on an area of 451,600 hectares out of the total planned 500,000 hectares. With the help of local population and a team of engineers of the Ministry of Emergencies, 1,532 tons of saxaul and 73 tons of Halostachys seeds were prepared. These seeds were planted on an area of 323,150 hectares using 2 airplanes; 119,440 hectares were planted using agricultural machinery, and 3,000 hectares were planted with the help of hang-gliders.

Additionally, the total area of 15,473 hectares was planted with the salt-tolerant plant seedlings, including 4,855,100 saxaul, 2,495,600 tamarix and 759,750 Halostachys. Another 8,154,250 seedlings of saxaul were prepared for planting.

For fixation of shifting sands, mechanical protection was made of reeds along 85.7 km and furrows were ploughed for seedlings on the total area of 118,222 hectares.

Source: GEF Agency of IFAS

Uzbekistan develops a forest monitoring system

Uzbekistan took another step for sustainable forest management in support of the Sustainable Development Goals.

On 8-10 August 2018, more than 30 forestry experts from Uzbekistan, Turkey and the Russian Federation met in Tashkent, Uzbekistan, to review a draft set of criteria and indicators for sustainable forest management.

National forest monitoring and assessment systems are designed to provide reliable

information on how forests are managed and used, thus helping to improve national forest policy development, planning and sustainable management.

This was a priority noted by President Shavkat Mirziyoyev during a 2017 address to the Parliament. There, he pointed out a need to develop criteria for assessing the effectiveness of relevant public bodies in Uzbekistan.

Source: www.unece.org/index.php?id=49757

12.3.4. Selected Indicators and Results of other SDGs



Goal 1: No Poverty

- The rate of extreme poverty has fallen rapidly: in 2013 it was a third of the 1990 value. The latest global estimate suggests that 11 per cent of the world population, or 783 million people, lived below the extreme poverty threshold in 2013:
- In 2017, economic losses attributed to disasters were estimated at over \$300 billion. This is among the highest losses in recent years, owing to three major hurricanes affecting the United States of America and several countries across the Caribbean.



Goal 2: Zero Hunger

- The proportion of undernourished people worldwide increased from 10.6 per cent in 2015 to 11.0 per cent in 2016;
- Aid to agriculture in developing countries totalled \$12.5 billion in 2016, falling to 6 per cent of all donors' sector-allocable aid from nearly 20 per cent in the mid-1980s;
- Progress has been made in reducing market-distorting agricultural subsidies, which were more than halved in five years from \$491 million in 2010 to less than \$200 million in 2015;
- In 2016, 26 countries experienced high or moderately high levels of general food prices, which may have negatively affected food security.



Goal 3: Good Health and Well-being

- Unsafe drinking water, unsafe sanitation and lack of hygiene continue to be major contributors to global mortality, resulting in about 870,000 deaths in 2016. These deaths were mainly caused by diarrhoeal diseases, but also from malnutrition and intestinal nematode infections;
- In 2016, household and outdoor air pollution led to some 7 million deaths worldwide.



Goal 4: Quality Education

■ In 2016, only 34 per cent of primary schools in LDCs had electricity and less than 40 per cent were equipped with basic handwashing facilities.



Goal 5: Gender Equality

- Based on data between 2000 and 2016 from about 90 countries, women spend roughly three times as many hours in unpaid domestic and care work as men:
- Globally, the percentage of women in single or lower houses of national parliament has increased from 19 per cent in 2010 to around 23 per cent in 2018.

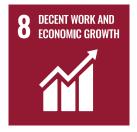
Goal 7: Affordable and Clean Energy

- From 2000 to 2016, the proportion of the global population with access to electricity increased from 78 per cent to 87 per cent;
- In 2016, 3 billion people (41 per cent of the world's population) were still cooking with polluting fuel and stove combinations;
- The share of renewables in final energy consumption increased modestly, from 17.3 per cent in 2014 to 17.5 per cent in 2015. Yet only 55 per cent of the renewable share was derived from modern forms of renewable energy.



Goal 8: Decent Work and Economic Growth

■ In 2016, real gross domestic product (GDP) per capita grew at 1.3 per cent globally, less than the 1.7 per cent average growth rate recorded in 2010–2016.



Goal 9: Industry, Innovation and Infrastructure

■ Globally, the carbon intensity decreased by 19 per cent from 2000 to 2015 – from 0.38 to 0.31 kilograms of carbon dioxide per dollar of value added.



Goal 10: Reduced Inequalities

■ Between 2010 and 2016, in 60 out of 94 countries with data, the incomes of the poorest 40 per cent of the population grew faster than those of the entire population.



Goal 11: Sustainable Cities and Communities

■ In 2016, 91 per cent of the urban population worldwide were breathing air that did not meet the World Health Organization air quality guidelines value for particulate matter.



Goal 12: Responsible Consumption and Production

- For all types of materials, developed countries have at least double the per capita footprint of developing countries. In particular, the material footprint for fossil fuels is more than four times higher for developed than developing countries;
- By 2018, a total of 108 countries had national policies and initiatives relevant to sustainable consumption and production.













Goal 13: Climate Action

■ As of 9 April 2018, 175 Parties had ratified the Paris Agreement and 168 Parties had communicated their first nationally determined contributions to the United Nations Framework Convention on Climate Change Secretariat; 10 developing countries had successfully completed and submitted the first iteration of their national adaptation plans for responding to climate change; developed country Parties continue to make progress towards the goal of jointly mobilizing \$100 billion annually by 2020 to address the needs of developing countries in the context of meaningful mitigation actions.

Goal 14: Life below Water

■ Global trends point to continued deterioration of coastal waters due to pollution and eutrophication. Without concerted efforts, coastal eutrophication is expected to increase in 20 per cent of large marine ecosystems by 2050.

Goal 15: Life on Land

- The Earth's forest areas continue to shrink, down from 4.1 billion hectares in 2000 (or 31.2 per cent of total land area) to about 4 billion hectares (30.7 per cent of total land area) in 2015. However, the rate of forest loss has been cut by 25 per cent since 2000-2005;
- About one fifth of the Earth's land surface covered by vegetation showed persistent and declining trends in productivity from 1999 to 2013, threatening the livelihoods of over one billion people. Up to 24 million square kilometers of land were affected.

Goal 16: Peace, Justice, and Strong Institution

■ Freedom-of-information laws and policies have been adopted by 116 countries, with at least 25 countries doing so over the last five years. However, implementation remains a challenge.

Goal 17: Partnerships for the Goals

■ Total ODA for capacity-building and national planning amounted to \$20.4 billion in 2016, representing 18 per cent of total aid allocable by sector, a proportion that has been stable since 2010.

Source: https://unstats.un.org/sdgs/report/2018/

12.4. Earth Overshoot Day 2018

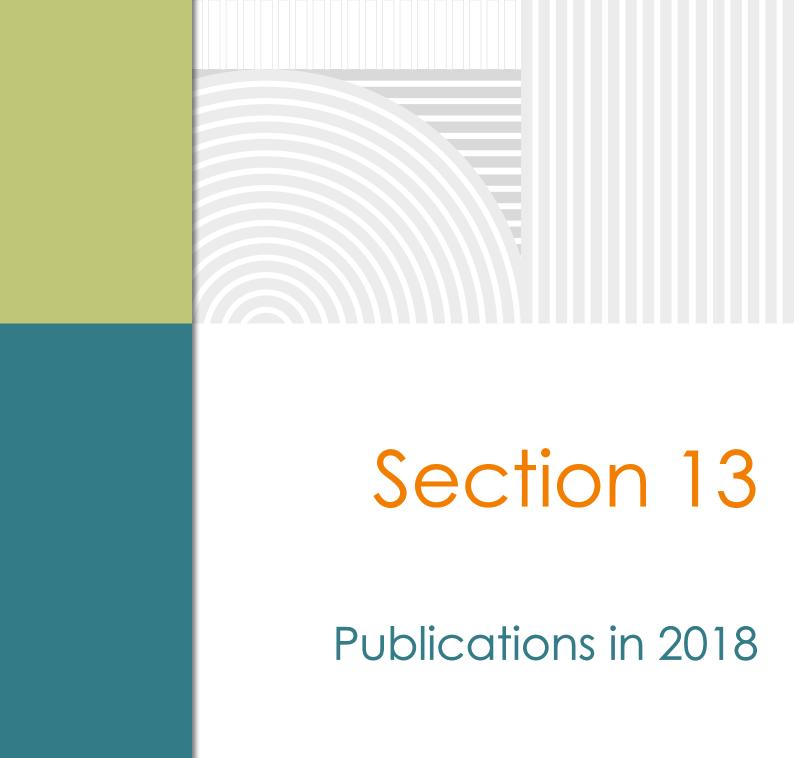
In 2018, Earth Overshoot Day fell on August 1, with 153 days of resources deficit. The date when humanity's annual demand on nature exceeds what Earth can regenerate over the entire year. It is calculated using the following formula: (planet's biocapacity)/(humanity's ecological footprint)*365. This means that for the remaining months of 2018 the humanity will use resources on "credit" – continuing reducing natural resource reserves accumulated over the past years and emitting more

carbon dioxide into the atmosphere. The first "ecological debt" was recorded on December 29, 1970 – resource deficit then was only two days. It is coming earlier each year: in 2000 – beginning of October, 2013 – August 20, 2014 – August 19, 2015 – August 13, 2016 – August 8, and 2017 – August 1. But if business continues as usual, the world would be using the resources equivalent to two Earths by 2030, with Earth Overshoot Day moving up on the calendar to the end of June²³.

https://www.overshootday.org/





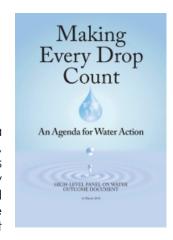


Making Every Drop Count: An Agenda for Water Action

Published by: High Level Panel on Water

URL: https://sustainabledevelopment.un.org/HLPWater

The report prepared by the High Level Panel on Water calls for a fundamental shift in the way the world manages water to achieve SDGs, particularly SDG 6: Ensure access to water and sanitation for all. The Panel's report found that today 40 percent of the world's people are affected by water scarcity, with as many as 700 million people at risk of being displaced by intense water scarcity by 2030. More than two billion people are compelled to drink unsafe water and more than 4.5 billion people do not have safely managed sanitation services. 80 percent of wastewater is discharged untreated into the environment. The Panel calls for policies that



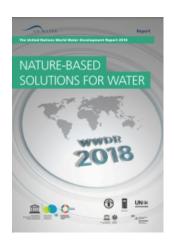
will allow for at least a doubling of water infrastructure investment in the next five years. The report makes the case that ways of working between, for example, governments, communities, the private sector and researchers, are essential.

The United Nations World Water Development Report 2018: Nature-based Solutions for Water

Published by: UN Water

URL: http://en.unesco.kz/launch-of-the-united-nations-world-water-development-report-2018-in-almaty

Nature-based solutions can play an important role in improving the supply and quality of water and reducing the impact of natural disasters. The latest edition of the report recognizes water not as an isolated element, but as an integral part of a complex natural process that involves evaporation, precipitation and the absorption of water through the soil. The presence and extent of vegetation cover across grasslands, wetlands and forests



influences the water cycle and can be the focus for actions to improve the quantity and quality of available water. Nevertheless, the use of nature-based solutions remains marginal and almost all investments are still channeled to grey infrastructure projects. Yet, to satisfy the ever-growing demand for water, green infrastructure appears to be a promising solution complementing traditional approaches. The authors of the report therefore call for greater balance between the two, especially given that nature-based solutions are best aligned with SDGs. Coordinated by the UN World Water Assessment Program, the UN World Water Development Report is the fruit of collaboration between the 31 United Nations entities and 39 international partners that comprise UN-Water.

The UN Convention on the Law of the Non-Navigational Uses of International Watercourses: A Commentary

Authors: Laurence Boisson de Chazournes, Makane Moïse Mbengue, Mara Tignino, Komlan Sangbana, and Assistant Editor Jason Rudall

URL: https://global.oup.com/academic/product/the-un-convention-on-the-law-of-the-non-navigational-uses-of-international-watercourses-9780198778769?cc=uz&lana=en&

The publication explores how international and regional laws interact when addressing shared water resources; examines the relationship between the UN Watercourses Convention and Multilateral Environmental Agreements; provides concrete illustrations of the challenges and best practices in the implementation of freshwater management and protection at the universal level.

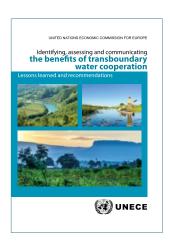


Identifying, assessing and communicating the benefits of transboundary water cooperation

Published by: UNECE

URL: https://www.unece.org/index.php?id=49807

Benefit assessments are useful and practical tools to promote transboundary water cooperation. Indeed, the adoption of a "benefit lens" can prompt and strengthen joint activities, plans or programs. This document takes stock of the three pilot benefit assessments conducted within the framework of the Water Convention's program of work in the Cubango-Okavango River Basin, the Sio-Malaba-Malakisi River Basin and the Drina River Basin. It identifies a series of lessons learned and recommendations to help inform the design and implementation of future



benefit assessment exercises. This document should interest all those responsible for water resources and who deal with transboundary issues, for example, ministries of foreign affairs, ministries of finance and development planning, sub-national governments of jurisdictions located in transboundary basins, river basin organizations, as well as financial and technical development partners involved in transboundary water cooperation.

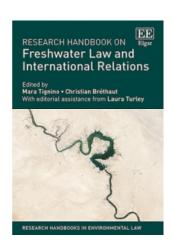
Research Handbook on Freshwater Law and International Relations

Authors: Mara Tignino and Christian Bréthaut

URL: www.e-

<u>elgar.com/shop/books?book_series=Research%20Handbooks%20in%20Environmental%20Law%20series</u>

Recent decades have seen pivotal changes in the management and protection of water resources, with human rights, environmental and water law each developing a strong interest in the conservation of fresh water. This surge in interest has meant that dispute settlement mechanisms, along with diplomatic tools, are becoming increasingly necessary for conflict



resolution. This Handbook offers an analysis of the interaction between law and various forms of knowledge and expertise, ranging from economics to environmental and social sciences. Leading scholars examine general and specific water legal regimes and analyze the interplay between various disciplines in order to establish the extent to which law is informed by each.

Catalogue of Glaciers of Kyrgyzstan

(in Russian)

Published by: Central Asian Institute of Applied Geosciences

URL:

http://www.caiag.kg/images/2%20Department/2018/Catalogue of Glaciers of Kyrgyzstan 2018.pdf

Given work contains the basic information on glaciers in the Kyrgyz Republic: location, main morphometric characteristics, and analysis of glaciation dynamics over approximately 70 years (comparison of the present state (2013-2016) with the data in the Catalog of Glaciers in the USSR

in the 40-70s of the twentieth century). The publication will be useful for glaciologists, hydrologists, climatologists and those experts who study glaciers, water balance, climate change, etc.



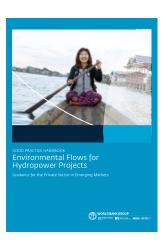
GOOD PRACTICE HANDBOOK. Environmental Flows for Hydropower Projects. Guidance for the Private Sector in Emerging Markets

Authors: World Bank,International Finance Corporation, and Multilateral Investment Guarantee Agency

URL: https://www.ifc.org/wps/wcm/connect/2c27d3d8-fd5d-4cff-810f-c6eaa9ead5f7/Eflows+for+Hydropower+Projects GPH 03022018finalWEB. https://www.ifc.org/wps/wcm/connect/2c27d3d8-fd5d-4cff-810f-c6eaa9ead5f7/Eflows+for+Hydropower+Projects GPH 03022018finalWEB. https://www.ifc.org/wps/wcm/connect/2c27d3d8-fd5d-4cff-810f-c6eaa9ead5f7/Eflows+for+Hydropower+Projects GPH 03022018finalWEB. https://wcm/connect/2c27d3d8-fd5d-4cff-810f-c6eaa9ead5f7/Eflows+for+Hydropower+Projects GPH 03022018finalWEB.

This Good Practice Handbook provides guidance to practitioners on taking rigorous and consistent approaches to assess and manage hydropower project impacts on downstream river ecosystems and people through the

assessment and provision of environmental flows (EFlows). The specific approach proposed by the Handbook allows to understand the context of river functioning and the provision of ecosystem values and services into which EFlows will be introduced, as well as the potential downstream impacts associated with hydropower development and how these can be mitigated. It demonstrates the application of a context-appropriate EFlows Assessment method and conduction of a comprehensive and appropriate stakeholder engagement program leading to a decision on EFlows and other mitigation measures based on the outcome of the assessment. It also compiles an EFlows Management Plan. The Handbook provides a logframe for integrating EFlows into hydropower projects (HPPs) and case studies to illustrate the main concepts addressed in the Handbook.



Water Resources Management in Uzbekistan

(in English and Russian)

Authors: Experts of SIC ICWC and MWM of Uzbekistan

Published by: GEF Agency of IFAS, OSCE

URL: http://www.cawater-

info.net/library/rus/water resources management in uzbekistan 2ed.pdf

This is the second edition of the book. It is an updated version of the book published in 2011. This publication is an information and analytical almanac presenting the history and development of the water sector in Uzbekistan. The book is intended for the general public.



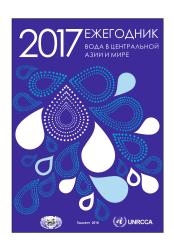
2017 Water Yearbook: Central Asia and Around the Globe

Authors: SIC ICWC team

Published by: SIC ICWC with the support of UNRCCA

URL: http://www.cawater-info.net/yearbook/index.html

The Yearbook is designed to present key developments and activities on water-related subjects in Central Asia and globally for ICWC members and all concerned parties in a user-friendly and single format. The 2017 Yearbook consists of 16 sections: Calendar of events; Water management situation in the Aral Sea Basin; IFAS and other regional organizations in Central Asia; Bilateral water cooperation between the states in Central Asia; Key water developments in the countries of Central Asia; etc.



Water in Central Asia: Past, Present, Future

(in Russian)

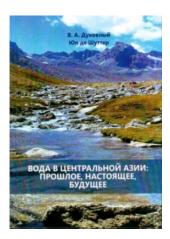
Authors: V.A.Dukhovniy and Joop de Schutter

Published by: Al-Farabi Kazakh National University

URL: www.cawater-info.net/library/rus/water_in_central_asia.pdf

The book provides a comprehensive study on the water use issue in Central Asia. Based on lessons learnt in the region, the authors demonstrate how to use water by making it an 'ally' in transforming dry land into the "Gardens of Eden" and ensuring sustainable development. As a way for encouragement of unity, the authors suggest consolidating the regional

analytical base and developing water diplomacy by establishing a Central Asian think-tank for analysis and forecasts. In their opinion, shared plans and joint activities for a balanced distribution of water between hydropower and irrigated agriculture will be the key for peaceful coexistence in Central Asia.



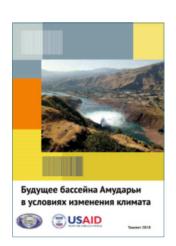
The Future of the Amu Darya Basin in the context of Climate Change

(in Russian)

Published by: SIC ICWC

URL: <u>www.cawater-info.net/projects/peer-amudarya/pdf/peer-amudarya-finalbook.pdf</u>

The publication summarizes results of the research project "Transboundary Water Management Adaptation in the Amu Darya Basin to Climate Change Uncertainties", which was implemented by the SIC ICWC of Central Asia, BWO Amu Darya and the Analytical Agency "Ynanch-Vepa" (Turkmenistan) as part of the USAID-supported program called Partnerships for Enhanced Engagement in Research (PEER).



Water for Land Reclamation, Economic Sectors and Natural Environment in the context of Climate Change (Collection of papers of the EECCA Network of Water Management Organizations). Two parts.

(in Russian)

Asia.

Published by: SIC ICWC

URL: Part 1. www.cawater-

info.net/library/rus/eecca papers collection vol 11 2018.pdf

Part 2.<u>www.cawater-</u> info.net/library/rus/eecca papers collection vol 12 2018.pdf

Given collection contains the papers that present the state-of-the-art in research and the on-going efforts in reclamation of land and provision of water for economic sectors and natural environment for mitigation of climate change effects in the countries of Eastern Europe, the Caucasus and Central



Prospective Application of Remote Sensing in Water Sector and Irrigated Agriculture in the Countries of Central Asia (in Russian)

Published by: SIC ICWC

URL: www.cawater-info.net/library/rus/rs papers.pdf

Remote sensing (RS) offers wider opportunities for observation, analysis and quicker response to changes, especially in the context of increasing extremes, such as floods, droughts, bank erosion, etc. At the same time, RS allows evaluating results and environmental impact of measures planned for the improvement of water and land productivity.



2017 Review of Developments in Water Management and Related Environmental Policies in China and in "Belt and Road" Countries

(in Russian)

Author: E.A.Simonov

Published by: SIC ICWC

URL: www.cawater-info.net/library/rus/inf/50.pdf

The state of river basins and transboundary water politics to a great extent depends on "out of water box" economic and political processes and trends. For the Eurasian continent such a framework process that concerns

all resource development and use aspects is the China's Belt and Road Initiative (BRI). The review is compiled in form of a short list of the key trends and developments in 2017, including source references.

Междунараны Фод газовом Арага Междунараны Перена сворбом портимента портимент

Strengthening Shardara Multi-Purpose Water Infrastructure in Kazakhstan

Authors: Jesper Karup Pedersen, Mikkel Kromann, Aditya Sood with inputs from A.Kenzheakhmetova, A.Ryabtsev and Kazakhstani experts

Published by: OECD

More than 8 000 large multi-purpose water infrastructures (MPWIs) around the world contribute to economic development, as well as water, food and energy security, encompassing all human-made water systems including dams, dykes, reservoirs and associated irrigation canals and water supply networks. Focused on the specific case of the Shardara MPWI located in Low Syr Darya Basin, South Kazakhstan and Kyzyl-Orda oblasts (provinces) of

Повышение роли Шардаринской многоцелевой водохозяйственной инфраструктуры в Казахстан

Kazakhstan, this report looks at the choice and design of MPWI investment strategies that ensure a high economic return on investments and potential bankability, based on application of a computer model and lessons learned from 15 international MPWI case studies.

Afghanistan: Rehabilitation of Hydraulic Infrastructure, Water Supply and the Groundwater Use Issues

(in Russian)

Published by: SIC ICWC

URL: www.cawater-info.net/afghanistan/pdf/afg1 2018.pdf

The brochure represents a review of materials on the development of drinking water supply, rehabilitation and construction of hydraulic infrastructure and the use of groundwater.



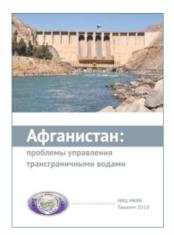
Afghanistan: Transboundary Water Resources Management Issues

(in Russian)

Published by: SIC ICWC

URL: www.cawater-info.net/afghanistan/pdf/afg2 2018.pdf

The digest presents a compilation of news over 2018 on Afghanistan's water policy and relations with neighbors.



Innovation Technologies in the Deserts of China, Israel, and Libya

(in Russian)

Published by: SIC ICWC

URL: <u>www.cawater-info.net/library/rus/inf/51.pdf</u>

This publication demonstrates cases of application of innovation technologies to combat desertification in China, Israel, and Libya.

Review of the Institutional Framework of Water and Land Reclamation Sectors in Different Countries of the World

(in Russian)

Published by: SIC ICWC

URL: www.cawater-info.net/library/rus/inf/52.pdf

Globally, water resources are not managed in one and same way – every country has its own approaches. This review provides several country case-studies.



Improvement of the State Agricultural and Water Governance System in Uzbekistan (Law Collection, Volume 45)

(in Russian)

Published by: SIC ICWC

URL: www.cawater-info.net/library/rus/legal 45.pdf

This collection introduces the Decree and Resolutions of the President of Uzbekistan concerning the improvement of agriculture and water management.



New Legislative Acts and Agreements on Land Management and Agriculture in the Countries of Central Asian (Law Collection, Volume 46)

(in Russian)

Published by: SIC ICWC

URL: www.cawater-info.net/library/rus/legal 46.pdf

This volume includes laws of Turkmenistan "On State Land Cadastre", "On State Regulation of Agriculture Development", "On Reclamation of Land", as well as the Agreement between the Government of Uzbekistan and the Government of Tajikistan on Cooperation in Geodesy, Cartography, Land Management, Cadastre and Remote Sensing.



The Itaipu Dam - Benefit Sharing on Joint Construction and Operation between Brazil and Paraguay

(in Russian)

Author: D. Ziganshina

Published by: SIC ICWC

URL: www.cawater-info.net/projects/peer-amudarya/pdf/itaipu.pdf

This brochure provides information on the Itaipú Dam, one of the largest ones in the world. The Dam built and operated jointly by Paraguay and Brazil gives a successful example of benefit sharing in the use of hydropower. The publication was prepared on the basis of a review of information and analytical documents, as well as the technical visit to the Itaipú Dam in March 2018.



Innovations in Support of Water Reforms in Uzbekistan

(in Russian)

Authors: V.I.Sokolov, N.N.Mirzaev, Sh.Khodjaev, I.Akramov, U.Solieva, O. Anarbekov, Z. Gafurov, M. Abduraimov

Published by: GEF Agency of IFAS

This collection of papers prepared by the Uzbekistan Water Partnership seems to be a good initiative to involve those working in the water sector of Uzbekistan in exchange of opinions and sharing of achievements. Given publication introduces different sides of problems faced in the country water sector and irrigated agriculture and their solutions.



Environmental Challenges in the Region of Central Asia at the Present Stage and in the Future: Search for Joint Solutions

Published by: Ma`no

In November 2018, the international roundtable "Environmental challenges in the region of Central Asia at the present stage and in the future: search for joint solutions" organized by the "Ma'no" Center for research initiatives and the Friedrich Ebert Foundation in Central Asia was held in Tashkent, Uzbekistan. Following the roundtable, a collection of papers presented by the participants was published with the financial support of the Friedrich Ebert Foundation.



Surface Water. Quality Monitoring Systems in Central Asia: Needs Assessment

Published by: CAREC

URL: http://www.riverbp.net/library/publications/issledovanie-potrebnosteysistem-monitoringa-kachestva-poverkhnostnykh-vod-v-tsentralnoy-azii/

This regional study was conducted within the framework of the project "Strengthening cooperation on water quality management in Central Asia" implemented by the UN Economic Commission for Europe (UNECE) in cooperation with the Regional Environmental Centre for Central Asia (CAREC) and supported by the FinWaterWei. The purpose of this project is to promote basin-wide regional cooperation on water quality.



Series of Methodological Guidelines for the Application of Best Practices in Green Economies

(in Russian)

Published by: CAREC

The series of publications is intended for practitioners at national and regional environmental agencies in the countries of Central Asia, as well as for those who are interested in application of green technologies in the water sector. The series was prepared as part of the EU/UNDP/UNECE joint project "Supporting Kazakhstan's transition to a Green Economy model" by CAREC.

The series contains information on 4 best practices:

1. Construction of a high-tech greenhouse in a "cold" region

URL: http://www.riverbp.net/library/publications/seriya-metodicheskikhrukovodstv-po-primeneniyu-luchshikh-praktik-dlya-prodvizheniya-zelenoyekonomi-4/



2. Development of oasis irrigation in deserts and semi-deserts

URL: http://www.riverbp.net/library/publications/seriya-metodicheskikhrukovodstv-po-primeneniyu-luchshikh-praktik-dlya-prodvizheniya-zelenoyekonomi-3/



3. Adoption of green technologies in rural education entities

URL: http://www.riverbp.net/library/publications/seriya-metodicheskikhrukovodstv-po-primeneniyu-luchshikh-praktik-dlya-prodvizheniya-zelenoyekonomi-2/



4. Automated Control System of the Aktobe Reservoir

URL: http://www.riverbp.net/library/publications/seriya-metodicheskikhrukovodstv-po-primeneniyu-luchshikh-praktik-dlya-prodvizheniya-zelenoyekonomi/



Water Resources and Water Management in Russia in 2017 (statistical book)

(in Russian)

Published by: National Information Agency "Natural Resources"

This is the updated statistics on water availability, use and protection; some water management indicators were adjusted as for the whole country, by constituent entities of the Russian Federation, river and sea basins, economic sectors, etc. Additionally, a number of indicators were updated to reflect economic costs and financing of the Federal Water Agency, other ministries and agencies, water users, as well as quantitative results of water management/conservation activity were shown.



Environment and its Protection in Russia: Changes in 25 Years

(in Russian)

Author: I.P.Blokov

Published by: Greenpeace

Based on almost 1500 literature sources, the author analyzes changes that occurred in nature protection in Russia over the last 25 years. By discussing various aspects, such as budget expenditures, norms and changes in environmental law, public participation in nature protection and the degree of public concerns in this respect, media coverage of these issues, dynamics of forest fires, waste management problems and others, the author demonstrates occurring changes, identifies the most critical



elements and areas, indicates directions and measures to be taken to remedy the situation. For the first time, the monograph presents a quantitative analysis of changes in environmental law and relevant publications in the media over a long period of time.

Ecological Atlas of Russia

(in Russian)

Published by: Russian Academy of Sciences

The "Ecological Atlas of Russia" is a project of the Faculty of Geography at the Lomonosov Moscow State University. The Atlas is a fundamental and comprehensive reference book that contains spatial and temporal information on ecological situation and environmental impact of economy and shows measures taken to rehabilitate the natural environment and improve the ecological situation.



The Thirst for Water Everyone Needs, but Not Affordable to Everyone

(in Russian)

Authors: G.G.Gulyuk, D.M.Ryskulov

Published by: All-Russia Research Institute of Hydraulic Engineering and Land Reclamation named after A.N. Kostyakov

This publication introduces geographic, geo-economic, and geopolitical dimensions of the water factor, as well as its strategic role in Russia's economy and Eurasian development, in joint governance of the continent's states, global trade and transport system.



Historical Development of Environmental Agencies in the Russian Federation

(in Russian)

Author: A.A. Solovyanov

Published by: Feoriya

The monograph traces the history of emergence and transformation of legislative and executive powers in Ancient Rus', Russia, RSFSR, USSR and the Russian Federation since the X century to the beginning of the XXI century. It analyses how natural resources and sites were governed. This monograph also addresses the history of emergence of agencies that monitored environmental impacts and reported on information about its state. Transformation of the waste management system is considered as well.









Central Asia

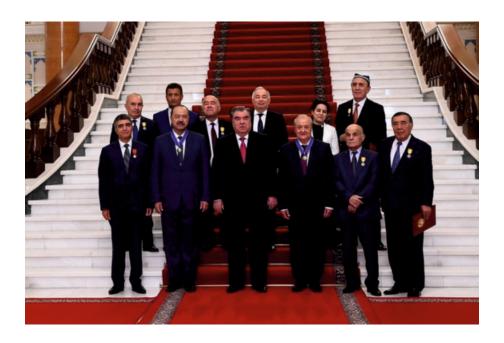
Water Awards

President of Tajikistan presented state awards to representatives of the Republic of Uzbekistan

On the eve of the 27th anniversary of the State Independence of Tajikistan, the **President of Tajikistan Emomali Rahmon** presented state decorations and honorary titles of the Republic of Tajikistan to the prominent statesmen, public figures and representatives of science, education and culture of neighboring Uzbekistan. The state decorations were awarded to following persons, who have made a significant contribution toward development and strengthening of friendship, good-neighborliness, cultural and humanitarian, socio-economic and scientific-technical ties as well as advanced all-round practical cooperation during Independence period for the benefit of the Tajik and Uzbek nations:

Khamraev Shavkat – Minister of Water Management of the Republic of Uzbekistan – awarded Sharaf Order (the Order of Glory), First Class;

Ismoil Jurabekov – adviser to the Minister of Water Management of the Republic of Uzbekistan – awarded the Order of "Dusti" (Friendship Order).



Source: http://eng.khovar.tj/2018/08/ceremony-of-conferring-state-awards-to-the-representatives-of-the-republic-of-uzbekistan/

President of Uzbekistan presented state awards to representatives of the Republic of Tajikistan

On the eve of the 27th anniversary of the State Independence of Uzbekistan, the **President of Uzbekistan Sh. Mirziyoyev** presented high awards of Uzbekistan to a group of statesmen, representatives of science, education and culture of Tajikistan. The awards have been conferred "for a great contribution to the strengthening of centuries-old relations of friendship and good neighborliness between the brotherly peoples of Uzbekistan and Tajikistan, active and fruitful activities to expand cultural and humanitarian ties, careful preservation and multiplication of the common historical heritage, spiritual values and traditions, and services in the development of mutually beneficial trade and economic cooperation and comprehensive strategic partnership between our countries". The order "Fidokorona khizmatlari uchun" ("For selfless service") was conferred to:

Kohir Rasulzoda – Prime Minister of the Republic of Tajikistan;

Sirojiddin Muhriddin – Minister of Foreign Affairs of the Republic of Tajikistan.



Source: https://mfa.uz/en/press/news/2018/08/15932/

Awards in the water sector of Kazakhstan

According to the Decision of the President of the Republic of Kazakhstan, state awards were given to civil servants and employees of national companies for their contribution to the social, economic and cultural development of the country and their merits in public and social activities. In particular, Chairman of the Committee on Water Resources of the Ministry of Agriculture Islam Almanovich Abishev was awarded the Order "Barys", Third Class.

Source (in Russian):

https://bnews.kz/news/sagintaev vruchil nagradi gosudarstvennim sluzhashchim i rabotnikam natsionalnih kompanii

Awards in the water sector of Kyrgyzstan

On December 31, **President S. Jeenbekov** signed a Decree "On presenting state awards of the Kyrgyz Republic" for significant contribution to the socio-economic, intellectual and spiritual potential of the country as well as for great achievements in professional activities. There were also water professionals among the awardees. Particularly:

The title "Honored Worker of Civil Service of the Kyrgyz Republic" was awarded to **Toktoshev Askarbek Suleymanovich**, Director of the Department of Drinking Water Supply and Sewage of the State Agency for Architecture, Construction and Housing and Communal Services at the Government of the Kyrgyz Republic.

Certificate of Merit of the Kyrgyz Republic was awarded to:

Artykbayev Seidakhmat Zhokobayevich – Head of the Water Resources and Facilities Control and Supervision Authority of the State Inspection on Environmental and Technical Safety at the Government of the Kyrgyz Republic;

Omurzakov Keneshbek Ergeshovich – Head of the Department of Water Resources of Uzgen district, Osh province.

Source (in Russian):

https://kaktus.media/doc/384712 sooronbay jeenbekov podpisal ykaz o prisyjdenii gosnagrad. kogo nagradili ves spisok.html

Awards in the water sector of Turkmenistan

According to the Presidential Decree, the best workers of agricultural sector in Turkmenistan were awarded medals and honorary titles. Particularly, the honorary title "Honored Worker of Agriculture of Turkmenistan" was conferred to the Chief Engineer of the Association "Garagumderýagurlusyk" of the Ministry of Agriculture and Water Resources of Turkmenistan **Charyev Ashirmukhammer Ovezovich**.

Source (in Russian): https://turkmenportal.com/blog/16413/v-turkmenistane-luchshie-rabotniki-selskohozyaistvennoi-otrasli-nagrazhdeny-medalyami-i-pochetnymi-zvaniyami

To commemorate the 27th anniversary of Independence of Turkmenistan, the honorary title "Honored Worker of Agriculture of Turkmenistan" was conferred to the Head of the Association "Garagumderýasuwhojalyk" of the Ministry of Agriculture and Water Resources of Turkmenistan **Mommadov Begench Amanovich**.

Source: http://www.parahat.info/edict/parahat-info-law-1545

Awards in the water sector of Uzbekistan

On the occasion of the Day of Agricultural Workers, several water professionals of Uzbekistan were awarded honorary titles and medals:

Order "Mekhnat Shukhrati" (Labor Glory)

Usmanov Aktam Suvanovich – Head of the Irrigation System Department "Miankal Tos", Basin Irrigation System Administration "Zarafshon", Samarkand Province;

Order "Dustlik" (Friendship)

Abdillaev Tulegen – Associate Professor of the Agricultural Machinery Department, Tashkent Institute of Irrigation and Agricultural Mechanization Engineers;

Zhiyanov Saidmurod Sotiboldievich – Chief Hydraulic Engineer of the Irrigation Department, Sardoba district, Basin Irrigation System Administration "Kuyi Sirdaryo", Syrdarya province;

Saidov Yusup Mamatovich – Head of Irrigation Department, Uzun district, Basin Irrigation System Administration "Amu-Surkhon", Surkhandarya province

Medal "Shukhrat" (Glory)

Tashmatov Abdirashit Tulabaevich – irrigator of the "Tojikiston" Water Consumer Association, Mirishkor district, Kashkadarya province;

Eshankulov Bakhtiyor Abdullaevich – irrigator of the "Bek Cluster" LLC, Mirzaabad district, Syrdarya province

Source (in Russian): http://xs.uz/ru/post/o-nagrazhdenii-v-svyazi-s-dnem-rabotnikov-selskogo-khozyajstva-gruppy-sootechestvennikov-vnesshikh-dostojnyj-vklad-v-razvitie-sfery







The 14th edition of the Global Risks Report, prepared by the World Economic Forum (WEF) with the support of Marsh & McLennan Companies and other partners, examines the evolving macro-level risk landscape and highlights major threats that may disrupt the world in 2019 and over the next decade.

Global Risks 2019

The report presents top 5 global risks in terms of their impact (weapons of mass destruction, failure of climate change mitigation and adaptation, extreme weather events, water crises, and natural disasters), as well as top 5 global risks in terms of their likelihood (extreme weather events, failure of climate change mitigation and adaptation, natural disasters, data fraud or theft, and cyber-attacks).

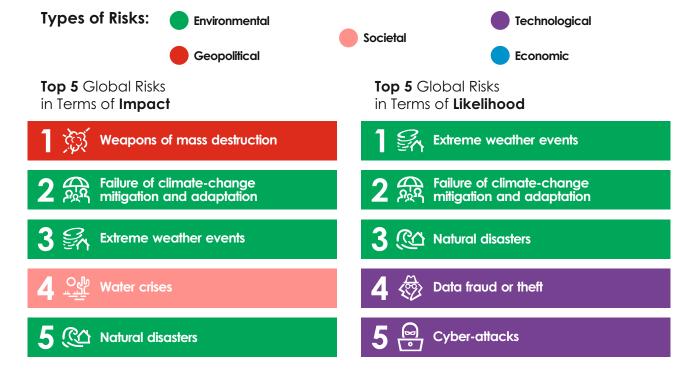
Risks are grouped in five categories:

- Economic;
- Geopolitical;
- Environmental:
- Societal;
- Technological.

Environmental risks continue to dominate the list of risks in terms of their impact and likelihood. In the report, water crisis is attributed not to environmental risks but to social ones.

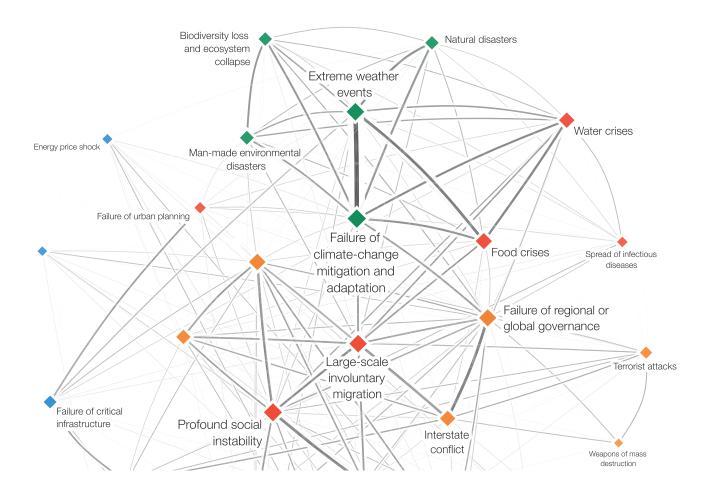
It is regarded as a significant decline in the available quality and quantity of fresh water, resulting in harmful effects on human health and/or economic activity.

In 2019, food crises, failure of climate change mitigation and adaptation, extreme weather events, and large-scale involuntary migration were among the most significant global risks associated with water crises.



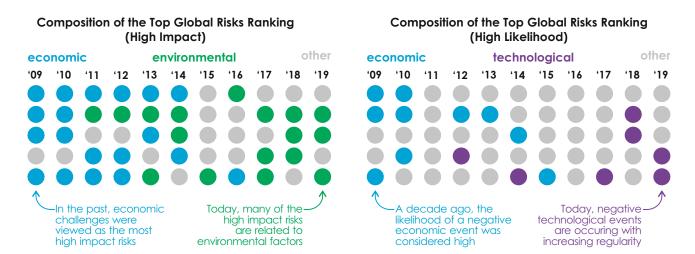
Source: World Economic Forum - Global Risks Report 2019

Water risks are largely interconnected with water crises



The report looks at two specific ways of evaluating global risks: i) the likelihood of an event occurring; and ii) the impact or severity of an event, should it occur. And over recent years, it's clear that the composition of these top threats has evolved. In 2009, the world was still reeling from the global financial crisis, so

economic concerns were naturally at the forefront of discussions. Today, the most likely scenarios to play out in the near future involve extreme weather events and natural disasters. Also trending upward are cyber-security threats and concerns over the security of personal data.



Source: World Economic Forum - Global Risks Report 2019

Technological Data frand or theft Weapons of mass destruction Extreme weather events Extreme weather events Natural disasters Failure of climate-change mitigation and adaptation Natural disasters Failure of climate-change mitigation and adaptation 2019 2019 Cyber-attacks Water crises Data fraud or theft Extreme weather events Natural disasters Natural disasters Failure of climate-change mitigation and adaptation Extreme weather events Failure of climate-change mitigation and adaptation 2018 2018 Cyber-attacks Water crises Societal Massive incident of data fraud/theft Weapons of mass destruction Extreme weather events Extreme weather events Failure of climate-change mitigation and adaptation Large-scale terrorist attacks 2017 2017 Major natural disasters Major natural disasters Large-scale involuntary migration Water crises Extreme weather events Failure of climate-change mitigation and adaptation Failure of climate-change mitigation and adaptation Geopolitical 2016 Major natural catastrophes 2016 Severe energy price shock Nater crises Large-scale involuntary migration Large-scale involuntary migration Rapid and massive spread of infectious diseases High structural unemployment or underemployment Interstate conflict with regional consequences Failure of climate-change mitigation and adaptation Extreme weather events Failure of nationa 2015 2015 Nater crise Environmental Critical information infrastructure breakdown Unemployment and underemployment Extreme weather events and underemploymer Income disparity Climate change Climate change 2014 2014 Cyber-attacks Water crises Fiscal crises Rising greenhouse gas emissions Mismanagement of population Failure of climate-change mitigation and adaptation The Evolving Risks Landscape, 2009 to 2019 Major systemic financial failure Severe income disparity 2013 Chronic fiscal imbalances 2013 Chronic fiscal imbalances Water supply crises Water supply crises Diffusion of weapons of n destruction Economic Extreme volatility in energy and agriculture prices Rising greenhouse gas emissions Food shortage crises 2012 2012 Major systemic financial failure Chronic fiscal imbalances Water supply crises Cyber-attacks Chronic fiscal imbalances Severe income Water supply Top 5 Global Risks in Terms of Likelihood disparity Top 5 Global Risks in Terms of Impact Extreme energy price volatility **Biodiversity loss** Climate change Climate change 2011 2011 Fiscal crises Storms and Asset price collapse cyclones Flooding Global governance gaps Slowing Chinese economy (<6%) Chronic disease Retrenchment from globalizati (developed) 2010 2010 Oil price spikes Chronic diseas Asset price collapse Fiscal crises Fiscal crises Asset price collapse Retrenchment from globalization Slowing Chinese economy (<6%) Chronic disease Chronic disease 2009 2009 Asset price collapse Oil and gas price spike Fiscal crises Asset price collapse **7**nd **7**nd **ts** S_{rd} ₽ ts ₽ ₽ P S_r Ę,

Source: http://www3.weforum.org/docs/WEF Global Risks Report 2019.pdf

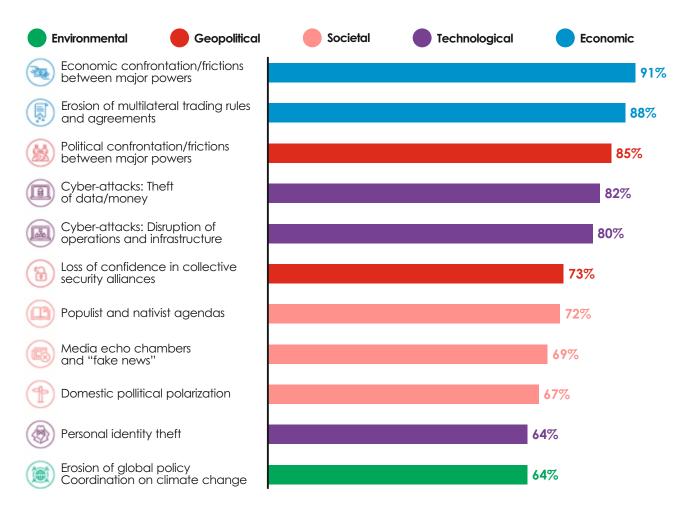
Risk Perception

Each year, the Global Risks Perception Survey looks at which risks are viewed by global decision-makers as increasing in the coming year. Some clear themes emerge from the responses:

- Breakdown in Geopolitical Cooperation. From trade wars to the dissolution of weapons treaties, cooperation between countries is on the decline. Leaders are concerned that this divergent geopolitical climate may continue to inhibit collective progress on important global challenges.
- Technological Instabilities. As the influence of technology creeps into more aspects of everyday life, cyber-attacks

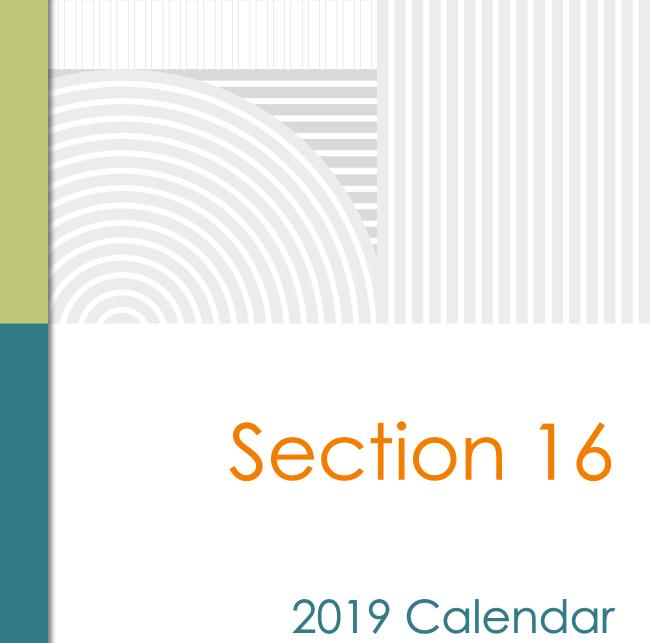
- and lax cybersecurity protocols are becoming more of a concern. In one dramatic example information theft, multiple breaches of India's government ID database reportedly left the information of over 1 billion registered citizens exposed. Technology is influencing society in other ways too, such as the pervasive issue of "fake news".
- Polarization of Government and Society. One of the major themes of this year's forum will be addressing increasing polarization in many countries. "Where opposing political groups previously expressed frustration with each other, they now express fear and anger", says the Report.

Respondents Expecting Risks to Increase in 2019



The Global Risks Report 2018 is available on: www.weforum.org/reports/the-global-risks-report-2019





of Events

January



24-25 January – Sixth EU – Central Asia High Level Conference on Environment and Water Cooperation, Tashkent, Uzbekistan

29-31 January – 24th session of the UNECE Committee on Environmental Policy, Geneva, Switzerland

February

- **5-7 February** Meetings of the Parties to the Espoo Convention and to the Protocol on SEA, Intermediary sessions, Geneva, Switzerland
- **6-7 February** "Uzbekistan 2035" International Forum for discussing the concept of the Strategy for long-term development of Uzbekistan, Tashkent, Uzbekistan
- **12 February** Conference "Central Asia New Opportunities and Prospects for Regional Cooperation", Tashkent, Uzbekistan
- 19-20 February International Conference "Central Asian Connectivity: Challenges and New Opportunities", Tashkent, Uzbekistan
- 💧 **21-22 February** 3rd International Conference on Climate Change, Kuala Lumpur, Malaysia
- 22 February Seminar "The Principle of no Significant Harm What Implications for Water Diplomacy?", the Hague, the Netherlands

March

- 8-9 March International Conference on Climate Change Adaptation and Multidisciplinary Issues, Taipei, Taiwan
- 10 March International Conference on Advances in Water and Wastewater Treatment Technologies, Shenzhen, China
- 13-16 March 8th and 9th meetings of the Board of Council and 3rd General Assembly of the Asia Water Council, Makati City, the Philippines
- 14 March International Day of Rivers
- 🖕 **21-22 March** Regional Forum on Sustainable Development, Geneva, Switzerland
- 22 March World Water Day
- **25-29 March** Regional Training of Trainers on Economic Tools to Make Basin Council Sustainable, Almaty, Kazakhstan
- 26 March Aral Sea Day
- 27 March Sixth Asia-Pacific Forum on Sustainable Development, Bangkok, Thailand

April

- 2-4 April Central Asia Climate Change Conference, Tashkent, Uzbekistan
- 9-10 April Conference of Network of Academic Community, Tashkent, Uzbekistan
- **16-17 April** International Workshop on Water Resources and Ecosystems of the Aral Sea Basin in cooperation with the Chinese Academy of Sciences, Nukus, Uzbekistan
- **22-26 April** Meeting of Small Basin Council in Murgab River Basin and Regional Demo-Tour to the Murgab River Basin, Mary, Turkmenistan
- 25-26 April Belt and Road Forum for International Cooperation, Beijing, China
 - **29-30 April** Global workshop on Ecosystem-based Adaptation in Transboundary Basins, UNECE Water Convention, Geneva, Switzerland
- 29-30 April Aspara River Day, the Kyrgyz Republic

May

- 1 May 10th meeting of the Task Force on Water and Climate, Geneva, Switzerland
- **1-3 May** Regional Meeting on Dam Safety Cooperation in Central Asia. Bilateral meetings Uzbekistan Tajikistan and Uzbekistan Kyrgyzstan, Tashkent, Uzbekistan
- **7-9 May** 10th International Conference on Sustainable Water Resources Management, Alicante, Spain
- 8 May Construction of a new village near Altyn Asyr Lake, Turkmenistan
- 13-14 May UNESCO International Water Conference, Paris, France
- **13-16 May** The annual Global Water Partnership's Regional Meetings (Regional Days), Amman, Jordan
 - 13-17 May Kurkureu Su River Day, the Kyrgyz Republic
 - 14-16 May World Hydropower Congress, Paris, France
- **22 May** International Day for Biological Diversity

June

- **5 June** World Environment Day (Environmentalist's Day)
- **5 June** International Conference on the "Role of Water Diplomacy in achieving the Sustainable Development in Central Asia", Ashgabat, Turkmenistan
- **5 June** 2nd Baku International Water Week, Baku, Azerbaijan
- 5-6 June 3rd Executive Committee Meeting of the Nexus Dialogue Program, Bonn, Germany
 - 6-7 June Singapore International Water Week

- 14-15 June Workshop on best practices, Bishkek, Kyrgyzstan
- **15 June** Fifth Summit of the Conference on Interaction and Confidence Building Measures in Asia, Dushanbe, Tajikistan
- **16 June** 12th IWA International Conference on Water Reclamation and Reuse, Berlin, Germany
- 17-20 June 17th "Europe-INBO 2019" International Conference for the Implementation of the European Water Directives, Lahti, Finland
- of the 9th World Water Forum, Diamniadio, Senegal 20-21 June Kick-off Meeting of the 9th World Water Forum, Diamniadio, Senegal
- **24-26 June** Conference of the European Union-Central Asia Water Science and Technology Network, Dushanbe, Tajikistan
- 24-26 June All-Russian Water Congress, Moscow, Russia
- 26 June CAREC Program workshop "Advancing Water Cooperation and Experience Exchange: Promoting Discussions", Tashkent, Uzbekistan

July

- 🕨 **3-6 July** Aspara River Day, Taraz, Kazakhstan
 - **8-10 July** Europe/CIS Regional Ministerial Conference on Green Economy, Tashkent, Uzbekistan
- **22-24 July** 5th International Congress on Water, Waste and Energy Management, Paris, France
 - **23 July** 1st Meeting of the Small Basin Council on the Uzbek Part of the Transboundary River Padshaata, Namangan, Uzbekistan
- 26 July Yomonzhar Canal Working Group Meeting, Bukhara, Uzbekistan

August

- 12 August Caspian Sea Day
- 12 August First Caspian Economic Forum, Turkmenistan
- 25-30 August World Water Week, Stockholm, Sweden

September

- **1-7 September** 3rd World Irrigation Forum & 70th International Executive Council, ICID, Bali, Indonesia
- **2-13 September** Fourteenth Meeting of the Conference of the Parties to the UN Convention to Combat Desertification (UNCCD COP 14), New Delhi, India
- 🔷 **4-7 September** Korea International Water Week, Daegu, Republic of Korea

- 8-11 September XXI Conference on International Water Law and Water Governance
 - 13 September Isfara River Day, Isfara district, Tajikistan
 - **16-18 September** International Conference "Water Security: New Technologies, Strategies, Policies, and Institutions", Beijing, China
 - **16-27 September** 10th Anniversary Central Asian Leadership Program on Environment for Sustainable Development, Almaty, Kazakhstan
- 23 September UN Climate Action Summit, New York, USA
- **23-24 September** International Conference of the EECCA NWO "Science and Innovations for Water Security", Yekaterinburg, Russia
- **23-27 September** XV International scientific-practical symposium and exhibition "Clean Water of Russia 2019", Yekaterinburg, Russia
- 30 September-3 October 11th INBO World General Assembly, Marrakesh, Morocco

October

- 15-17 October Budapest Water Summit, Budapest, Hungary
- **22-24 October** Meeting of the Working Group on Integrated Water Resources Management, UNECE Water Convention
- **25 October** International High-Level Conference under the auspices of UN "Prearalie is the Zone of environmental innovations and technologies", Tashkent, Uzbekistan
- 28-30 October Water Security and Climate Change Conference, San Luis Potosi, Mexico

November

5-9 November – Aquatech Amsterdam 2019 – world's trade exhibition for process, drinking and waste water, Amsterdam, the Netherlands

December

- **2-13 December** 25th session of the Conference of the Parties (COP 25) to the UN Convention on Climate Change (UNFCCC), Chile
- **4-5 December** Global workshop on data exchange in transboundary basins, UNECE Water Convention
- 6 December Meeting of the Working Group on Monitoring and Assessment, UNECE Water Convention

