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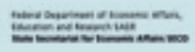
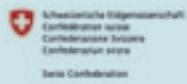
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CENTRAL ASIA WATER AND ENERGY PROGRAM



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The CAWEP team, led by William Young, drafted, reviewed, and coordinated production of the report, with contributions from CAWEP activity teams. Editorial review was provided by the Europe and Central Asia External Communications team and the report was cleared by World Bank management.

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**CENTRAL ASIA
WATER AND ENERGY
PROGRAM**



**Annual Report
2021**

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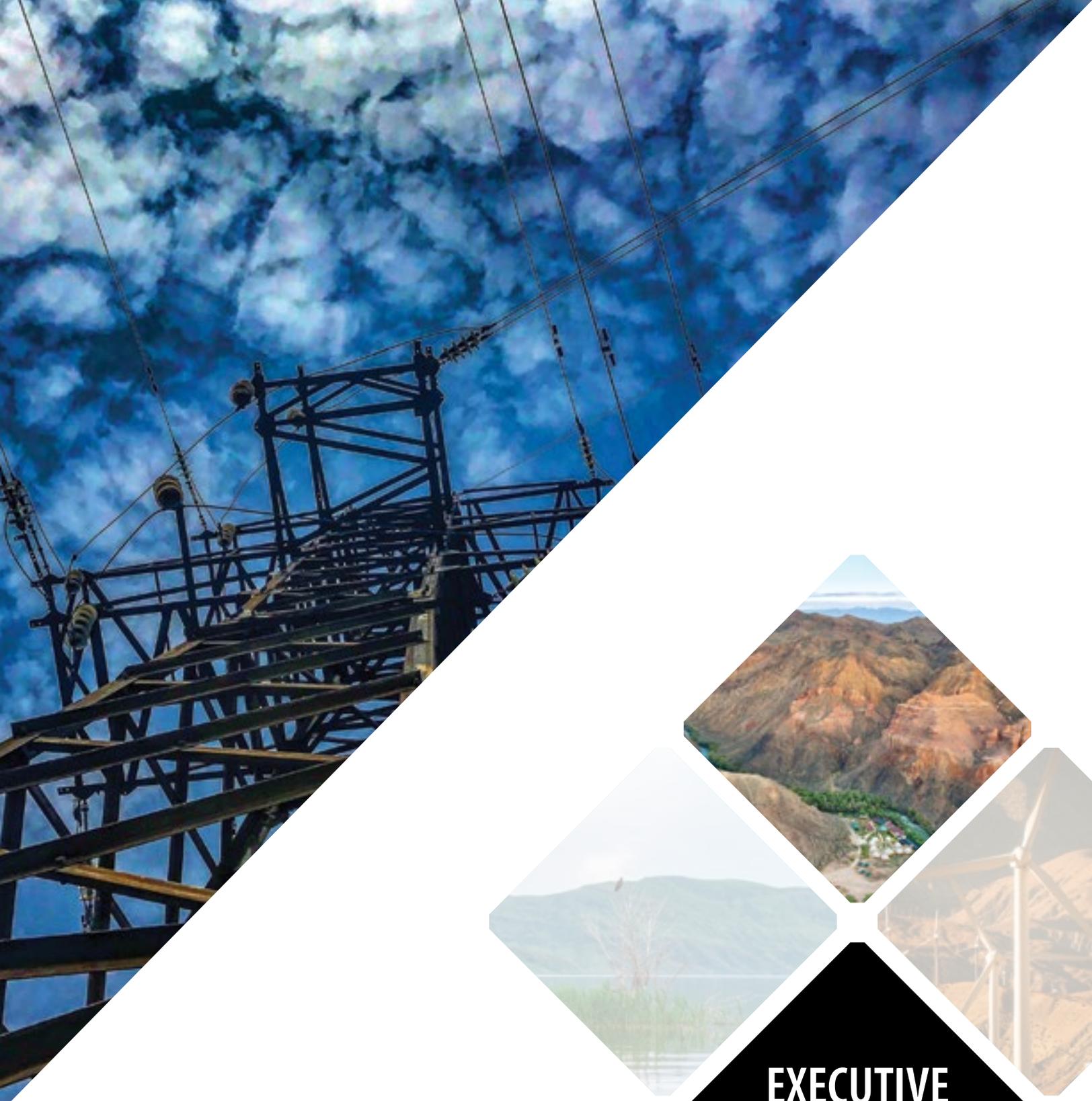
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ABBREVIATIONS

AF	Afghanistan
ASBP-4	Fourth Aral Sea Basin Program
BETF	Bank-Executed Trust Fund
CA	Central Asia
CAFEWS	Central Asia Flood Early Warning System
CAKN	Central Asia Knowledge Network
CAWEP	Central Asia Water and Energy Program
CAREC	Central Asia Regional Economic Cooperation
CAREC ^{env}	Regional Environmental Center of Central Asia
COP	Conference of Parties
CDC Energia	Coordinating Dispatch Center Energia
DABS	Da Afghanistan Breshna Sherkat
EC-IFAS	Executive Committee of the International Fund for Saving the Aral Sea
EMS	Energy Management System
ESCC	Energy Sector Coordinating Committee
EU	European Union
GBAO	Gorno-Badakhshan Autonomous Oblast
GHG	greenhouse gas
HPP	hydropower plant
IFAS	International Fund for Saving the Aral Sea
IWRM	integrated water resource management
KfW	Kreditanstalt für Wiederaufbau
km ³	cubic kilometers
KZ	Kazakhstan
KG	Kyrgyz Republic
kWh	kilowatt-hour
MTR	mid-term review
MW	megawatt
PACT	Program for Asia Connectivity and Trade
RETF	Recipient-Executed Trust Fund
RWG	Regional Working Group
SCADA	Supervisory Control and Data Acquisition
SECO	State Secretariat for Economic Affairs of Switzerland
TJ	Tajikistan
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development
UZ	Uzbekistan
WB	World Bank
WSS	water supply and sanitation
WUA	water user association

**All dollar amounts are US dollars unless otherwise indicated.*



EXECUTIVE SUMMARY

This report describes the activities and management of the [Central Asia Water and Energy Program \(CAWEP\)](#) for the period January 1–December 31, 2021. It is the fourth Annual Report for the third phase (2018–2022) of the program. CAWEP is a multi-donor trust fund administered by the World Bank, with financing from the European Union (EU), Switzerland, and the United Kingdom.

The program development objective is *to strengthen the enabling environment to promote water and energy security at regional levels and in the beneficiary countries*. CAWEP’s long-term vision is to promote sustainable development and livelihood security in Central Asia and Afghanistan. This aligns with the World Bank’s regional engagement framework that aims to strengthen connectivity and increase the economic value of water and energy resources in the region. CAWEP efforts are also aligned with the [Climate Change Action Plan](#) of the World Bank Group.

By November 2023, CAWEP aims to have:

- Improved policy frameworks for water and energy security that are adopted at national level;
- Informed a framework for regional water and/or energy security;
- Strengthened regional and national institutional capacity for water and/or energy management; and
- Leveraged or informed \$2.5 billion of World Bank investments, including \$0.8 billion during CAWEP’s third phase, that improve national and regional water and energy security.

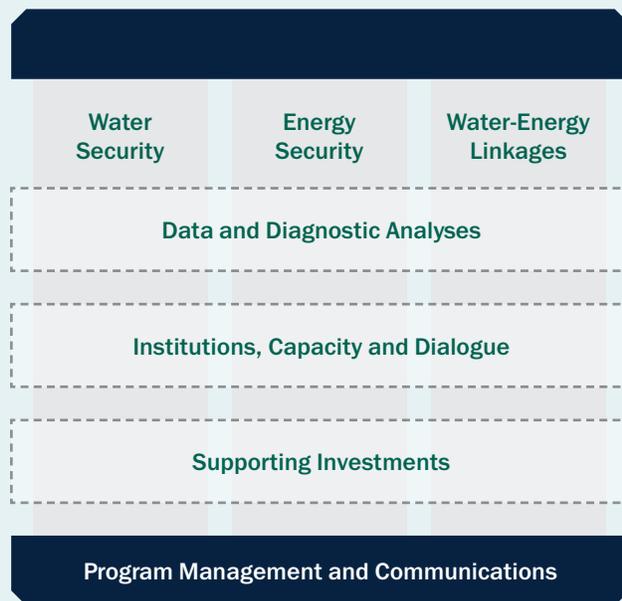


FIGURE 1. PROGRAM STRUCTURE

CAWEP

BY THE NUMBERS

**US\$12.9
MILLION**

**in Bank-executed and
Recipient-executed grants**

to strengthen the enabling environment to promote water and energy security regionally and in beneficiary countries

6 countries

AFGHANISTAN

KAZAKHSTAN

KYRGYZ REPUBLIC

TAJIKISTAN

TURKMENISTAN

UZBEKISTAN

32 activities

- Technical assistance to strengthen institutional capacity for water and energy management
- Advisory services to inform policy and investments
- Preparation grants to support investments

CAWEP supports data and diagnostic analyses; institutions, capacity, and dialogue; and relevant investments; structured under three pillars (Figure 1):

- **Water Security** – promoting sustainable and efficient use of shared water resources and integrated water resource management (IWRM);
- **Energy Security** – promoting security and economic efficiency of energy supply from national to regional level; and
- **Water-Energy Linkages** – guiding management of the water-energy nexus and climate-change adaptation efforts that link two or more countries.

Regional Context

2021 marked thirty years of independence for the Central Asian countries. Presidential elections were held in the Kyrgyz Republic and Uzbekistan, and parliamentary elections were held in Kazakhstan. The region continued to face social, economic, and public health consequences associated with the COVID-19 pandemic. Conflicts along the Kyrgyzstan-Tajikistan border and social and economic upheavals in Afghanistan following the Taliban take-over, destabilized parts of the region. These security issues and regional energy connectivity and cooperation were discussed at the third consultative meeting of the heads of Central Asian countries on August 6, 2021. The countries agreed to improve connectivity and to increase regional cooperation. At the 26th session of the Conference of the Parties (COP26) to the United Nations Framework Conference on Climate Change (UNFCCC) in November, Central Asian countries voiced, for the first time ever, a joint position on the importance of regional and international cooperation to tackle the climate crisis. Climate change is having increasing environmental impacts across region, as well as threatening food and energy insecurity and increasing flood and drought risks. The extended drought in 2021 highlighted the region’s water vulnerability.

Progress in 2021

A mid-term review (MTR) conducted in March–April 2021 confirmed the high relevance of CAWEP relative to donor priorities, country needs, and the World Bank’s regional strategy for Central Asia. The MTR noted strong coherence with other regional initiatives. The MTR assessed program progress as moderately satisfactory, but more effective at the national level than at the regional level. The MTR recommended a no-cost extension to enable completion of ongoing activities and full utilization of remaining funds. CAWEP donors and the World Bank subsequently agreed to a no-cost extension to November 2023.

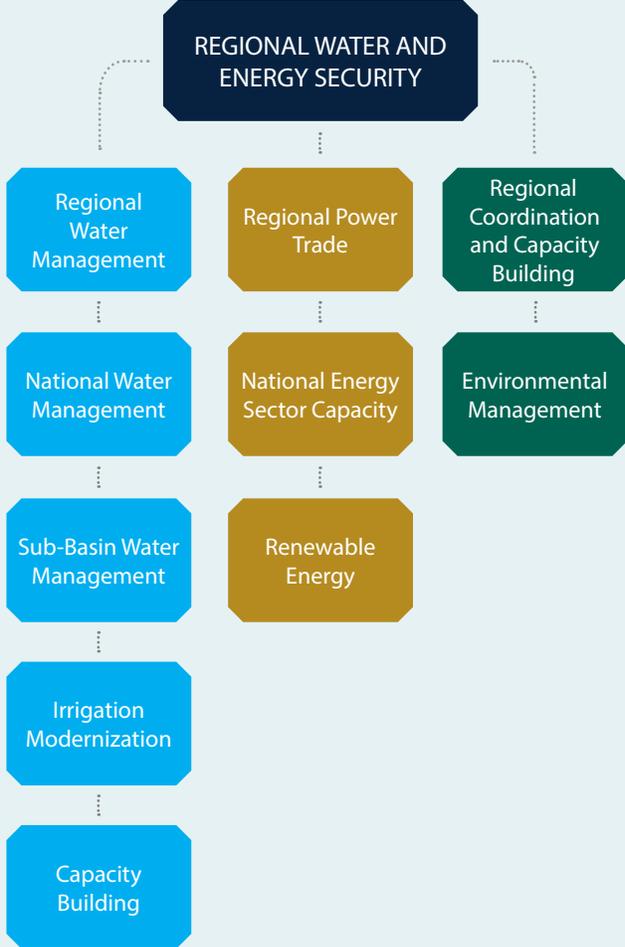


FIGURE 2. CAWEP FOCUS AREAS

Thirty-two grants (including program management and communications) totaling \$11.56 million were active during the year. Seven activities were completed during the year. In February, a new \$0.2 million activity on renewable energy development in the Kyrgyz Republic commenced. CAWEP has now leveraged a total of \$1.4 billion (an additional \$210 million in 2021) in development financing. The program has informed preparation of nine World Bank-financed projects with investments of \$0.72 billion for water, energy, and landscape restoration. Achievement of program-level outcome indicators for transboundary governance remains challenging, but CAWEP’s renewed efforts to support the International Fund for Saving the Aral Sea (IFAS) and the Regional Environmental Center for Central Asia (CAREC^{env}) are expected to make progress on this front. Good progress has been made on analytical work (nine analytical outputs completed in 2021) and on capacity building with 50 percent more knowledge sharing and learning events in 2021 than in 2020. Since September 2021, events shifted to a hybrid online and offline format. Focus areas for 2021 are shown in Figure 2.

At regional level, CAWEP is focusing support to the IFAS institutional reform process, technical knowledge sharing and networking in water supply and sanitation (WSS), irrigation modernization, shared infrastructure, transboundary landscape restoration, hydromet services, and IWRM education. The Central Asia Knowledge Network (CAKN) convened a conference in March to discuss the challenges and opportunities in the region for academic and professional knowledge sharing and for cross-border water partnerships.

A major achievement in 2021 was finalization of the concept of an integrated regional hydrological and meteorological data processing and forecasting platform – the Central Asia Flood Early Warning System (CAFEWS). CAFEWS will improve regional monitoring and forecasting of extreme weather, snowmelt, river flow, floods, and landslides, and will help preparation for disasters, management of water resources, and optimization of agricultural and energy production. Under the Energy Security Pillar, the regional Central Asia Regional Electricity Trade and Market Development activity assessed the economic benefits of regional electricity trade using a regional power system model.

At national level, CAWEP is contributing to building institutional capacity and advancing reforms in the water, energy, and environment sectors. Stakeholder consultations were initiated in the Kyrgyz Republic to inform a new draft law on water supply and wastewater. In Tajikistan, a policy note was prepared for the government to inform the National Water Supply and Sanitation Program, and the development and diversification of renewable energy infrastructure was supported. In the Kyrgyz Republic, preparation of a renewable energy development strategy was supported, and a workshop and subsequent study tour to Uzbekistan were conducted on renewable energy development and private sector participation. These engagements led to a request for World Bank finance for a pilot renewable energy project in the Kyrgyz Republic. Analytical work and stakeholder consultations in Tajikistan and the Kyrgyz Republic identified priority areas for landscape restoration using remote sensing technologies.

Allocations and Disbursements

In 2021, \$0.2 million was allocated, bringing total allocations to \$11.56 million. Annual disbursements were about one-third higher than in the previous year. 39 percent of funds have been allocated to activities under the Water Security Pillar, and 25 percent of funds have been allocated to activities under each of the other two pillars. Program management and communications account for the remainder of the allocated funds. Cumulative disbursements reached \$7.2 million (56 percent of allocated funds).





CHAPTER 1

REGIONAL AND COUNTRY CONTEXT

Regional Context

2021 marked thirty years of independence for the Central Asian countries. Presidential elections were held in the Kyrgyz Republic and Uzbekistan, and parliamentary elections were held in Kazakhstan. The region continued to face social, economic, and public health consequences associated with the COVID-19 pandemic. On August 15, the Taliban assumed control of Afghanistan following the withdrawal of North Atlantic Treaty Organization forces and their allies, heightening regional security concerns. Economic conditions rapidly deteriorated, which, coupled with drought-induced water shortages, led to sharp declines in household incomes, disruption to basic services, rapid currency depreciation, and wide-spread displacement. Between January and November, 736,000 Afghans were internally displaced¹. Long-standing tensions along the Kyrgyz–Tajik border escalated, and in April, conflict over irrigation water led to numerous casualties.

These security issues, and regional energy connectivity and cooperation, were discussed at the third consultative meeting of the heads of Central Asian countries on August 6, 2021, in Turkmenbashi, Turkmenistan. The countries agreed to improve connectivity and to increase regional cooperation. While the meeting considered the implications of regime change in Afghanistan and the Kyrgyz–Tajik border disputes, the final declaration also noted the “common desire to further expand and strengthen relations in all areas of mutual interest, including politics, sustainable and stable development, trade, economic and investment and financial, transport and communications, water and energy, information technology, environmental and cultural humanitarian cooperation.” The joint statement from the leaders of Central Asian countries, outlined plans to increase cooperation and identified priority areas for joint work. The countries declared that they are ready to make joint efforts to improve the mechanisms of long-term and mutually beneficial cooperation to achieve the goals of sustainable development in the region. The foreign ministries were tasked with developing a regional cooperation roadmap for 2022–2024.

Regional cooperation gained momentum at the UNFCCC COP26 in November. Central Asian countries voiced, for the first time ever, a joint position on the importance of regional and international cooperation to tackle the climate crisis. Climate change is having increasing environmental impacts across region, as well as threatening food and energy insecurity and increasing flood and drought risks.

Water Security. In 2021, Central Asia experienced abnormally high temperatures and an extended drought,

highlighting the region’s water vulnerability. Water shortages led to mass livestock deaths, decreased crop yields, and reduced hydropower generation. More than 80 percent of Afghanistan was severely affected leading to widespread food insecurity.

On March 3, the United Nations General Assembly adopted [resolution A/RES/75/266](#) on cooperation between the United Nations and the IFAS. The resolution noted the need for further improvement of the activities of the IFAS to strengthen regional cooperation in such areas as social and economic development, environmental protection and response to natural disasters, water resources management, climate adaptation and mitigation, exchange of information, and science and innovation. It emphasizes the importance of the development and effective implementation of regional environmental protection programs for sustainable development in Central Asia, including assistance programs for the countries of the Aral Sea Basin. On March 18, [special resolution \(A/75/L.83\)](#) of the United Nations General Assembly declared the Aral Sea region as the zone of ecological innovations and technologies.

On October 18, the 5th meeting of the Regional Working Group (RWG) on improving the organization structure and legal framework of the IFAS was held in Dushanbe, Tajikistan. CAWEP supported development of a discussion paper and reform recommendations. In conjunction with this meeting, a coordination meeting of the Executive Committee of the IFAS (EC-IFAS) and international development partners, was convened with CAWEP support. The meeting discussed mechanisms for implementing the 4th Aral Sea Basin Program (ASBP-4) and agreed to establish a coordination and information sharing platform for EC-IFAS and development partners. A joint statement from EC-IFAS and development partners on support for ASBP-4 implementation was issued.

The 26th session of the UNFCCC COP26 in November, in Glasgow, United Kingdom, included a Water Pavilion, and a panel session (with the International Water Management Institute, the United Nations Food and Agriculture Organization, the International Union for Conservation of Nature, and other partners) on the urgent need of climate change adaptation and mitigation to balance water and food security in Central Asia. EC-IFAS Chairman, Mr. Sulton Rahimzoda, noted the increasing cooperation of Central Asian states on water and food security, climate resilience, and joint project implementation, including through approval of ASBP-4.

Energy Security. At the 3rd consultative meeting of the heads of the Central Asian governments in August, the President of Uzbekistan proposed expanding the mandate and powers of the Electric Power Coordination Council of

1 Towards Economic Stabilization and Recovery. The Afghanistan Development Update (April 2022). The World Bank.

Central Asia and raising the level of country representation on the Council. He proposed developing a regional program for a “Green Agenda for Central Asia” to support climate mitigation and adaptation including through wider introduction of resource-efficient technology. New significant energy exchange agreements were reached between Uzbekistan and Kyrgyz Republic, and between Kazakhstan and the Kyrgyz Republic. Uzbekistan and Tajikistan are jointly planning two hydropower plants on the Zarafshan River in Tajikistan, with a combined generating capacity of 320 MW. Uzbekistan has offered to assist with construction of the Kambarata and Rogun hydropower plants, in Kyrgyz Republic and Tajikistan, respectively.

On November 5, the 1st EU-Central Asia economic forum was held in Bishkek, Kyrgyz Republic. The forum included a thematic session on transition to a green, climate-resilient economy, that discussed low-carbon energy, energy-efficient agriculture and industry, environmental management measures, and improved water management.

On November 12, the Organization of Turkic States² approved Turkic World Vision 2040 at the 8th summit held in Ankara, Turkey. The vision included member countries’ commitment to build strategic energy partnerships, collaborate on energy diversification and clean/green energy, and institutionalize energy cooperation through the establishment of an integrated Turkic Energy Market.

Water-Energy Linkages. On July 26–27, the 4th Central Asia Climate Change Conference “Regional Cooperation for Climate-Resilient Future” was held in Dushanbe, Tajikistan. The conference objective was to strengthen regional dialogue, and information and knowledge exchange, to support evidence-based decision-making for climate resilience, as well as exploring possibilities for climate project implementation. The conference discussed climate policy and financing, climate action by Central Asian countries, the role of civil society in closing climate change information gaps, ensuring transparency of government climate action, and supporting community-level climate change adaptation.

At the UNFCCC COP26, Central Asian countries voiced, for the first time ever, a consolidated position on the importance of regional and international cooperation to tackle the climate crisis, and Kazakhstan and Tajikistan signed a Charter of the Green Bridge Partnership Program to develop collective approaches to addressing climate challenges. With the support of the EC-IFAS and development partners, the CAREC^{env} organized a joint Central Asian Pavilion visited by more than 2,000 people.

Country Contexts

Afghanistan

In March, President Ashraf Ghani, who came to power with promises of improving water management, opened the Kamal Khan Dam in the southwestern Nimroz province on the border with Iran.

Following the Taliban take-over, international financing to Afghanistan was suspended, including for the Central Asia – South Asia Electricity Transmission and Trade (CASA-1000) project, the Turkmenistan-Uzbekistan-Tajikistan-Afghanistan-Pakistan project, and the Turkmenistan-Afghanistan-Pakistan interconnector project. In June, around twenty-five electricity pylons were destroyed or damaged by explosions, and Afghanistan subsequently experienced massive power shortages. In December, Da Afghanistan Breshna Sherkat (DABS) signed a contract with the National Electric Grid of Uzbekistan for electricity imports and negotiated continued electricity imports from Tajikistan.

Kazakhstan

Kazakhstan’s new Ecological Code was adopted on January 2, effective from July 1. The code introduces the “polluter pays and corrects” principle, and promotes biodiversity, establishes tariffs to encourage renewable energy, and sets emissions caps for Kazakhstan’s top fifty greenhouse gas (GHG) emitters. Under a five-year program, saxaul trees were planted across more than 100,000 hectares of the dry Aral Sea bed; government has committed to plant out 1.1 million hectares under the program.

In May, President Kassym-Jomart Tokayev instructed government to increase the national share of renewable energy to 15 percent by 2030. Commitments for net-zero GHG emissions by 2060 demand immediate action including technological restructuring of the economy and stronger GHG regulation.

On October 12, the Zhasyl Kazakhstan (Green Kazakhstan) program for 2021–2025 was approved. The program has four priorities, including increasing energy efficiency and increasing water productivity. It aims to increase water storage by 1.7 km³ by constructing nine new reservoirs, reduce irrigation water loss by 4 km³, and reduce industrial water use by 1.3 km³. Construction of Kensai-Koskorgan Reservoir was completed in the Turkestan oblast.

In November, a [public interactive map of rural water supplies](#) was launched. The online map provides

² Established in 2009, the Organization of Turkic States, formerly known as the Cooperation Council of Turkic Speaking States, consists of Azerbaijan, Kazakhstan, Kyrgyz Republic, Turkey, and Uzbekistan as member countries and Hungary and Turkmenistan as observer countries.

information on water service access, tariffs, and investment needs, and will be updated by local authorities. In December, Kazakhstan–Uzbekistan relations shifted from strategic partnership to a closer alliance, and a new declaration was signed highlighting the importance of ecological conditions and water security and confirming transboundary water resources as a shared asset and public good. The countries agreed to develop sustainable long-term mechanisms for bilateral cooperation and to continue a joint working group for development of proposals on water cooperation.

Kyrgyz Republic

In January, Sadyr Zhaparov was elected president, and a national referendum gave overwhelming support for a change from a parliamentary system of government to a presidential system. During the year the institutional and policy environment evolved rapidly. A new Ministry of Energy and Industry was established, and the mandate of the Ministry of Natural Resources, Ecology and Technical Supervision was expanded to include regulation and allocation of water resources. The Ministry of Natural Resources, Ecology and Technical Supervision serves as a Secretariat for a National Land and Water Council established on November 24, although the Water Resource Service under the Ministry of Agriculture retains responsibility for irrigation service delivery. On December 10, amendments were adopted to the Water Code, and to the law on water user associations (WUA) and WUA federations. Policy formulation for water supply and wastewater remains with the Department of Drinking Water Supply and Wastewater Disposal. The department initiated development of a new water supply and wastewater law, and a revision of design norms and rules for water supply and wastewater systems.

In September, at the 76th UN General Assembly, President Zhaparov proposed a resolution on international cooperation on glacier monitoring and research. The resolution was adopted at the UNESCO General Conference in November. At COP26, President Sadyr Japarov proposed special purpose financing for poor mountainous countries and a special UN fund for climate adaptation with a focus on conservation of glaciers, forests, and biodiversity, increased resilience to natural disasters, and social and economic support for mountain communities.

On October 12, the National Development Program to 2026 was adopted by presidential decree. Hydropower development was identified as the top economic priority, including new projects such as Kambarata-1, Upper Naryn Hydropower Plant (HPP) cascade, Suusamyr-Kokomeran HPP cascade, Kazarman HPP cascade, and reconstruction and modernization of Toktogul HPP. The program proposes

gradual tariff increases towards financial sustainability, while supporting vulnerable people through compensation measures. Agriculture was identified as the second priority, including irrigation infrastructure reconstruction and modernization, and increased water use efficiency and productivity. The program highlights the need to strengthen the enabling environment for development, including capital investments for water supply rehabilitation to connect around 100 villages annually to safe drinking water to achieve 95 percent access by 2026.

On December 21, the National Security Concept was adopted with 20 goals including energy security and rational water use. External threats listed include water-energy issues, and global and regional climate change (including glacier shrinkage and water resource changes). Internal threats listed include ecological degradation, water pollution, natural and man-made disasters, and industrial decline especially. Key energy security objectives include reform, new HPPs, new thermal power stations, renewable energy development, and reconstruction of the outdated electricity grid. Key water security objectives include implementation of the National Water Strategy and the State Irrigation Investment Program, improved service delivery, increased water use efficiency, and establishing an enabling environment for increased drought resilience. The Concept proposes development of a regulatory framework to increase land and water use efficiency to underpin food security.

Tajikistan

Low flows in the Vakhsh River led to reduced hydropower generation leading to electricity supply disruptions. In February, electricity exports to Kazakhstan and Uzbekistan were suspended to secure domestic supply for the remainder of winter.

On March 3, a Water and Climate Leaders Panel was held via a videoconference with the participation of the Tajikistan head of state. [In his speech](#), President of Tajikistan Emomali Rahmon stressed the intense melting of glaciers due to global warming and called for effective mechanisms to conserve water resources. The President indicated that a nexus approach can help to address current problems, by developing a green economy, and supporting sustainable development.

In June, the presidents of Tajikistan and Uzbekistan signed an agreement on joint construction of two HPPs on the Zarafshan river basin. The parties agreed to Yavanskaya HPP at estimated cost of \$282 million, with a generating capacity of 140 MW to produce 700–800 million kWh of electricity annually. This will be followed by a second HPP at an estimated cost of \$270 million, with a generating

capacity of 135 MW to produce 500–600 million kWh of electricity annually.

In September, the Government of Tajikistan demonstrated its commitment to irrigation management and investment, as well as to hydropower, in its [decree](#) on the Public Investment Program for 2021–2025. From November 25–26, an international scientific conference on glaciers was held in Dushanbe, Tajikistan, with more than 100 participants from the region and beyond. In December, the Minister of Energy and Water Resources – Daler Juma – indicated development of renewable energy sources is top priority, with hydropower potential estimated at 527 billion kWh annually. In December, the World Bank Board approved \$65 million in additional grant financing to support the Second Phase of the Nurek Hydropower Rehabilitation Project. The project will improve the reliability of domestic electricity supply and expand electricity export.

Turkmenistan

In February, a National Aral Sea Program concept for 2021–25 was approved, and President Berdymukhamedov proposed river dredging and dam maintenance to ensure irrigation water supply.

On September 13, the first meeting of the Joint Turkmen-Uzbek Intergovernmental Commission on water management was held in Tashkent, Uzbekistan, and a protocol on water management issues was signed. The meeting discussed cooperation on the operation of water facilities and use of Amu Darya water resources.

At the UNESCO General Conference, Turkmenistan was elected a member of the Intergovernmental Council of the International Hydrological Program for 2021–25. The program objectives are to promote knowledge generation in hydrology, develop modern hydrologic research methods, and develop strategies and policies for sustainable management and use of water resources.

In November, the State Committee on Statistics of the Ministry of Finance and Economy, together with the United Nations Development Program, finalized a national platform for implementation of the Sustainable Development Goals. Also in November, Turkmenistan participated as an observer in the summit of the Organization of Turkic States.

Uzbekistan

In February, the Ministry of Energy prepared a roadmap for carbon neutrality developed in collaboration with the Ministry of Foreign Investment and Trade, and with the support of the European Bank for Reconstruction and Development and the Government of Japan. The roadmap confirmed it is technically and economically possible for

Uzbekistan to reach peak GHG in the electricity sector in the near future and to achieve carbon neutrality by 2050. It includes an action plan across five priority areas: (i) transformation of electricity generation infrastructure including scaling-up renewables and more efficient thermal power; (ii) strengthening the regulatory framework to enhance development of renewables; (iii) subsidy reforms and introduction of a carbon price; (iv) awareness raising for public support, social acceptability, and sustainability of necessary changes; and (v) environmental protection through climate change mitigation and increased climate resilience.

In October, President Shavkat Mirziyoyev was re-elected for a second five-year term. In his inauguration speech he recommitted to key reforms and announced a seven-point strategy prioritizing the environment and ecological innovations and technologies for the Aral Sea region.

On November 30, amendments to the law on water and water use were adopted. The mandate of the Cabinet of Ministers was expanded to include implementation of measures for water sector development, effective water use, reducing the impacts of water shortages, approval of water and water use programs, and approval of the procedure for state support for water-saving technologies. The functions of local water authorities now include support for irrigation and drainage infrastructure maintenance and reconstruction, and support for enforcement of WUA rules. Under the amended law, WUAs have the right to stop water supply to farmers who do not adhere to water use rules, use water for unapproved purposes, or who do not pay membership or service fees in a timely manner. The amendments also allow transfer of water bodies (other than large reservoirs) for operation under private-public partnerships.

In December, Uzbekistan and the International Atomic Energy Agency signed a five-year cooperation framework agreement. The framework identifies priority areas for the transfer of nuclear technology and identified resources for technical cooperation. On December 10, a presidential decree on Additional Measures for the Further Development of Hydropower for 2021–2030 in Uzbekistan was adopted. Uzbekistan plans to increase hydropower generation up to 3,416 MW by 2030, through construction of new HPPs and modernization of existing facilities. The hydropower development program includes private sector incentives. In 2021, Zarchob-1 and Zarchob-2 HPPs (combined generating capacity of 75 MW) were commissioned in the Surkhandarya oblast, benefitting 40,000 people.





CHAPTER 2

PROGRAM OVERVIEW AND PROGRESS SUMMARY

Program Objective and Structure

CAWEP is a multi-donor trust fund administered by the World Bank, with financing from the EU, Switzerland, and the United Kingdom. The third phase of CAWEP commenced in January 2018 with a \$3.5 million commitment from the State Secretariat for Economic Affairs of Switzerland (SECO), followed by a \$1.0 million commitment from the United Kingdom's Foreign, Commonwealth, and Development Office, channeled through the Program for Asia Connectivity and Trade (PACT) in August 2018. The United Kingdom contribution supports electricity trade with South Asia and energy sector activities in Afghanistan, Kyrgyz Republic, Tajikistan, and Uzbekistan. In May 2019, the EU committed €7.0 million, bringing total program funding to \$12.6 million. Because of exchange rate fluctuations and investment income, the total program funding is estimated to be approximately \$12.9 million.

The program development objective is *to strengthen the enabling environment to promote water and energy security at regional levels and in the beneficiary countries*. CAWEP's long-term vision is to promote sustainable development and livelihood security in Central Asia and Afghanistan. It works with development partners to expand efforts to establish the parameters for cooperation at technical and institutional levels; improve the availability of data and information; harmonize sectoral policies and regulations to facilitate cross-border connectivity and trade; and support activities that increase regional cooperation to advance sustainable development and climate resilience. Initiatives financed by the program are designed to improve water and energy management; develop and strengthen national and regional institutions; and facilitate regional dialogue on water and energy security.

CAWEP is the only multi-donor program in Central Asia working to improve water and energy security at national and regional levels. With the European Union as a key donor, CAWEP also reflects the interests in Central Asia of the many EU member states. The World Bank's convening power, independence, deep sector expertise, and financing capacity, make it uniquely placed to advance this agenda.

By November 2023, CAWEP aims to have:

- Improved policy frameworks for water and energy security that are adopted at national level;
- Informed a framework for regional water and/or energy security;
- Strengthened regional and national institutional capacity for water and/or energy management; and
- Leveraged or informed \$2.5 billion of World Bank investments, including \$0.8 billion during CAWEP's third phase, that improve national and regional water and energy security.

CAWEP supports data and diagnostic analyses, institutions, capacity, and dialogue, and relevant investments, structured under three pillars:

- **Water Security** – promoting sustainable and efficient use of shared water resources and IWRM.
- **Energy Security** – promoting security and economic efficiency of energy supply from national to regional level; and
- **Water-Energy Linkages** – guiding management of the water-energy nexus and climate-change adaptation efforts that link two or more countries.

Figure 3 indicates activities by focus areas across program pillars.

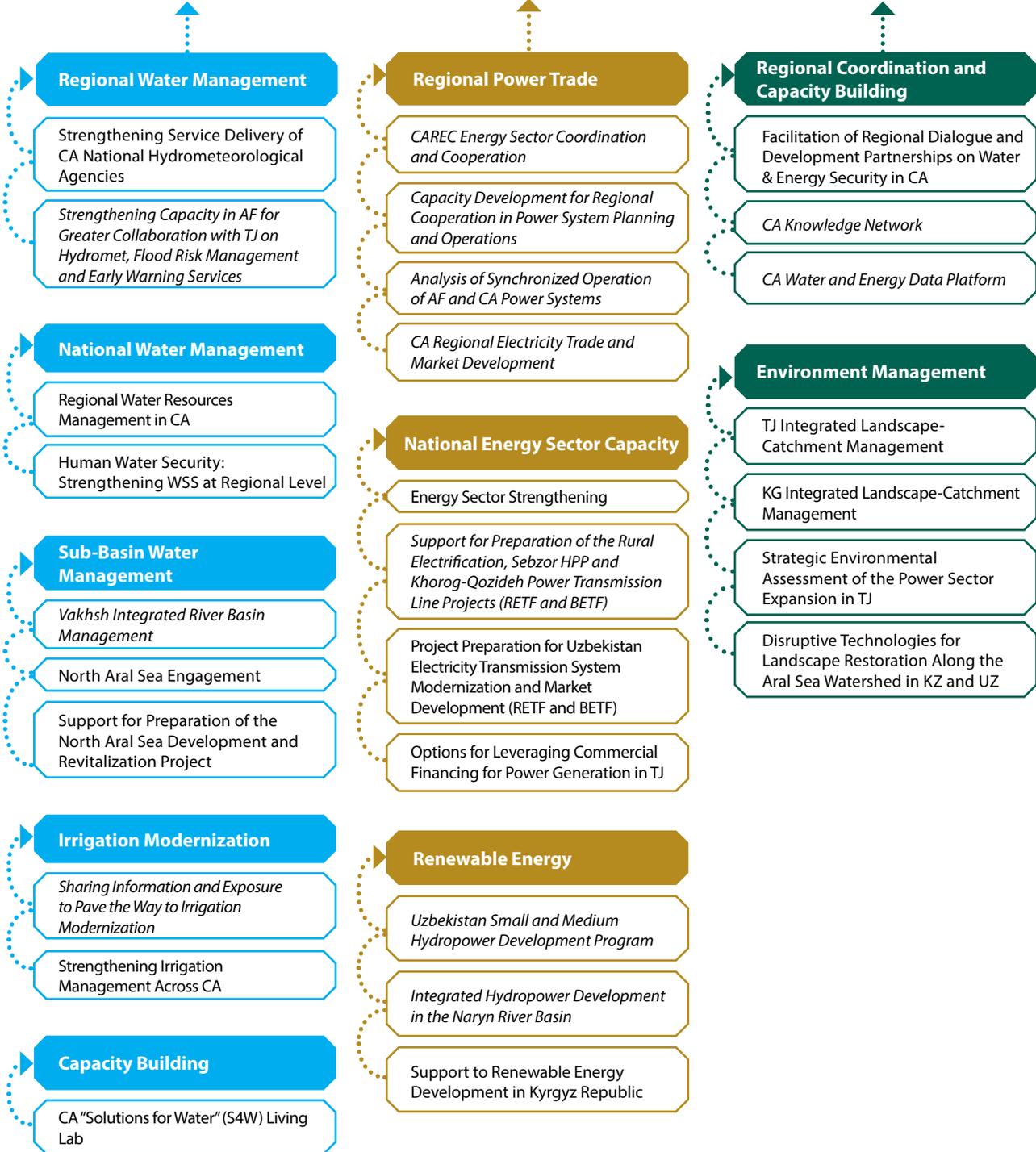
Program Progress and Key Activities

Solid progress was made in 2021, but continued COVID-19 constraints on field data collection and international consultant travel affected some activities. Knowledge sharing and training activities were mostly conducted as online events, however, since September 2021, the improved epidemiological situation led to an increase in hybrid format (online and offline) events. Seven activities were successfully completed – one under the Water Security Pillar, five under the Energy Security Pillar, and one under the Water-Energy Linkages Pillar. \$200,000 was committed to support development of renewable energy in the Kyrgyz Republic. By the end of 2021, the portfolio consisted of 18 activities.

Water Security Pillar

The activity Strengthening Capacity in Afghanistan for Greater Collaboration with Tajikistan on Hydromet, Flood Risk Management, and Early Warning Services was completed in November 2021. It advanced inclusion of Afghanistan into the wider CAFEWS and facilitated agreement between Central Asia and Afghanistan for inclusion of Afghanistan data. Although 20–25 percent of the Amu Darya flow originates in Afghanistan, hydromet observations from this area are not accessible in Central Asia, limiting CAFEWS effectiveness. The inclusion of Afghanistan data provides greater cohesion and cooperation for operations and management of the Amu Darya. The Afghanistan Hydromet Atlas complements the Central Asia Hydromet Atlas with detailed information on Afghanistan, enhancing understanding of Afghanistan's climate and hydromet services. During 2021, Afghanistan agreed on sites for new monitoring stations on the Panji River and developed a Joint Road Map for hydromet development.

REGIONAL WATER AND ENERGY SECURITY



Note: Closed activities indicated in italics.

FIGURE 3. CAWEP FOCUS AREAS AND ACTIVITIES



Stakeholder consultation on new water supply and wastewater law, Bishkek, Kyrgyz Republic, October 29, 2021.

During the consultative meetings Tajikistan and Afghanistan officially confirmed the extension of the Memorandum of Understanding on Exchange of Hydrological Data and Information to 2025. Regime change in Afghanistan means further advancement of these agreements is uncertain.

In 2021, CAWEP supported capacity development and advisory support to advance reforms in three Central Asian countries under the Human Water Security activity. In the Kyrgyz Republic, stakeholder consultations were held to inform a draft law on water supply and wastewater. The activity also supported capacity development on small-scale sanitation for rural areas. In Tajikistan, a series of consultations with the interstate working group was convened, a policy note on short- and long-term institutional reforms for the National Water Supply and Sanitation Program was prepared for the government, and a Public Expenditure Review was conducted for finalization in 2022. In Uzbekistan, support was provided for improving the tariff calculation tool and for revising process for setting tariffs. An online workshop for 14 utilities was convened to strengthen WSS tariff reviews and tariff setting processes.

Energy Security Pillar

Under the Energy Security Pillar, five activities were completed in 2021: two regional and three country-level activities. In Afghanistan, regime change meant consultations with Central Asian countries on grid synchronization had to be cancelled. The Analysis of Synchronized Operation of Afghanistan and Central Asian Power Systems activity was subsequently closed, and no further follow-on work is envisioned. In Tajikistan, a recipient-executed trust fund (RETF) grant supported [Barqi Tojik](#) and the Pamir Energy Company to update the feasibility study and prepare environmental and social documents for three development financed projects for provision of reliable electricity to remote villages in the Gorno-Badakhshan Autonomous Region and Khatlon province.

The regional Central Asia Regional Electricity Trade and Market Development activity assessed the economic benefits of regional electricity trade under alternative scenarios using a model of the regional power system. This revealed that increased electricity trade among Central Asian countries could generate economic benefits of up to \$6.4 billion between 2020 and 2030. The assessment confirmed the economic potential of cross-border trade under development or under consideration. The model developed for the assessment will be expanded as part of a follow-up activity to explore the economic feasibility of specific regional projects, regional renewable energy integration, or the role of regional connectivity in power sector decarbonization.

The Energy Sector Coordination and Cooperation activity conducted a strategic assessment of the technical feasibility and economic viability of green hydrogen production, use, and export in Central Asia. The activity was used to facilitate dialogue and donor coordination across the energy sector, through the World Bank's engagement in the meetings of the Energy Sector Coordinating Committee (ESCC) of the Central Asia Regional Economic Cooperation Program (CAREC), ministerial conferences, senior officials' meetings and energy investment forums, and through dissemination of analytical work and best practices across Central Asia. The activity contributed to development of the first CAREC Energy Strategy and Work Plan (2016–2020) that guided CAREC energy sector activities. The activity was completed in April 2021.



A family in Tajikistan enjoying electricity brought by the Rural Electrification Project informed by CAWEP.

Water-Energy Linkages Pillar

The **Central Asia Knowledge Network (CAKN)** activity was completed in September 2021, however, CAKN work continues under an ongoing CAWEP activity. Established in 2012 as a knowledge and capacity building program, CAKN networked over 300 professionals with experience in water resource management across academia and public and private sectors in Central Asia. In the third phase of CAWEP, CAKN has contributed to improving regional water education, enhancing analytical and research capacity, and promoting the gender and youth agendas in IWRM. For example, CAKN supported the establishment of the Central Asia Youth Water Network at the Kazakh-German University. With ongoing support from CAKN, the Kazakh-German University has been able to develop and operationalize the Central Asian Journal of Water Research. CAKN also supported regional academic cooperation by unifying water resources education curricula, regular knowledge exchange at regional conferences and trainings, and involvement of local experts in implementation of activities. During the COVID-19 pandemic, CAKN quickly responded to an increased demand for capacity building in online education and conducted trainings on tools and methods for online education. In March 2021, a major CAKN conference was convened, with more than 80 participants discussing the challenges and opportunities in Central Asia for academic and professional knowledge sharing and cross-border partnerships on water issues.

Program Results

CAWEP has made steady progress towards its Results Framework targets as illustrated in the radar plots (Figure 4). Achievement of the outcome indicators at the level of project development objective remains challenging for transboundary governance processes. There is no evidence that joint decisions have been significantly influenced by CAWEP investment, yet CAWEP's renewed efforts to support IFAS and CAREC^{env} can help make steps forward in these areas and pay dividends in the coming years. Significant progress was achieved at the level of pillars and themes. CAWEP activities are closely linked to broader World Bank engagement, providing key technical support to sector reforms and strengthening the enabling environment and institutions. Decision-makers and technical professionals from over 22 institutions in the water and energy sectors have benefitted from advisory services on institutional and regulatory development, peer learning, and capacity building.

One of the major achievements of CAWEP is the leverage of finance from the World Bank and other development financing institutions. To-date, CAWEP has leveraged \$1.4 billion (including \$0.72 billion by the World Bank) in transboundary investments in Central Asian countries, or \$121 for every \$1 invested. CAWEP analytical and advisory work has informed nine World Bank-financed operations that will benefit more than 33 million people in Kazakhstan, Kyrgyz Republic, Tajikistan, and Uzbekistan. The program has successfully coordinated development partners in pursuit of a common development objective. For example, CAWEP leveraged \$65 million financing of development partners (EU, Kreditanstalt für Wiederaufbau (KfW), SECO, and the United States Agency for International Development (USAID)) to promote electrification in Gorno-Badakhshan Autonomous Oblast (GBO) and Khatlon province.

● 2018 ● 2019 ● 2020 ● 2021 ● Target

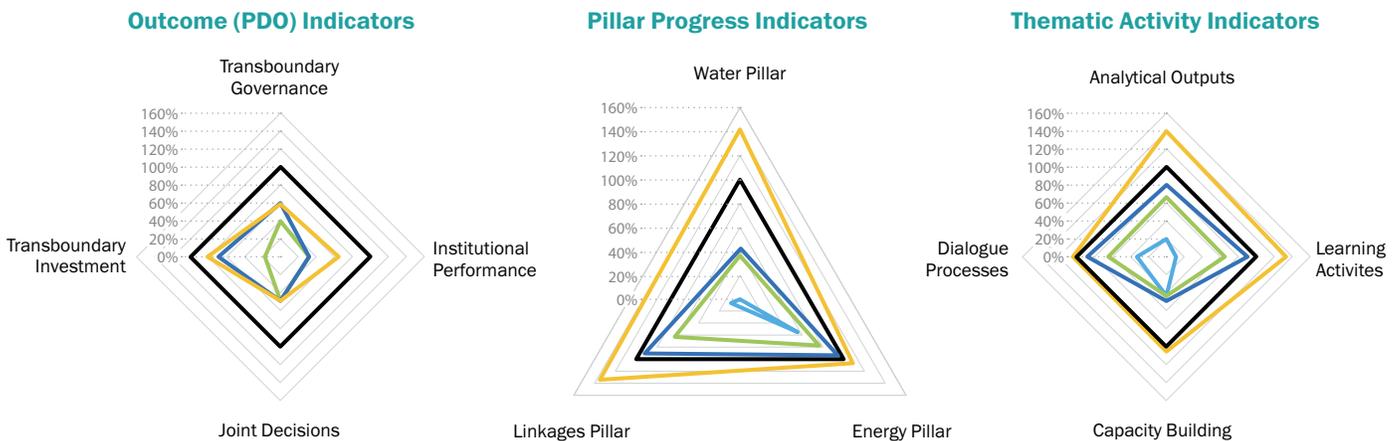


FIGURE 4. 2021 PROGRAM RESULTS

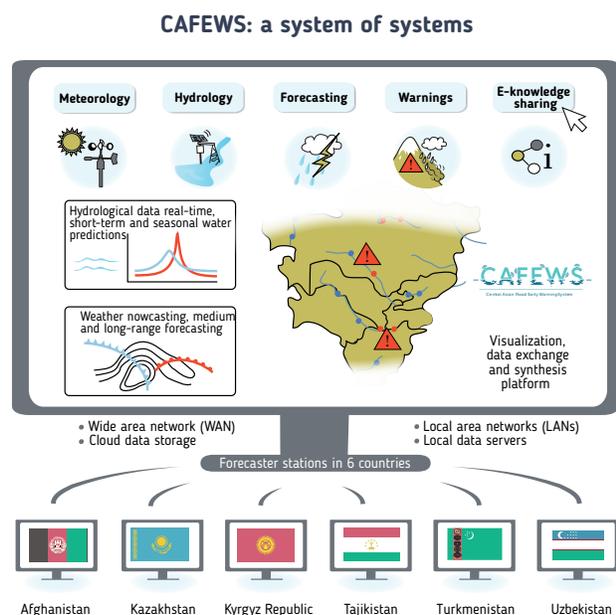
Building Climate Resilience

Central Asia is highly vulnerable to the impacts of climate change. Over the past three decades, average annual temperatures have already risen by 0.5 degrees Celsius – warming considerably faster than the global average rate. The Amu Darya and Syr Darya river basins face significant risks of hydrometeorological disasters such as floods, landslides, and droughts. While precipitation projections are very uncertain, warming is accelerating glacier melting and shifting the seasonal timing of snow and glacier meltwater flows. The region’s glaciers, that account for 12 percent of annual streamflow in the Amu Darya and 4 percent of annual streamflow in the Syr Darya (meltwater from ice and snow on ice)³, have already shrunk by one third in volume since the start of the 20th Century. The effects of climate change and rising global temperatures are triggering seasonal anomalies and further complicating the hydrological system, with droughts and spring floods becoming more severe.

Without proactive action, climate change will have profound consequences across the region – with greatest impact for the poor. In the last thirty years, weather, water, and climate-related disasters have cost thousands of lives, affecting almost 29 million people, and causing over \$2.7 billion in economic damages⁴. Improved preparedness and risk-based planning and management can help reduce impacts, with the accuracy of hydrological forecasting and the timeliness of flood and drought warnings highly dependent

on real-time monitoring and processing of hydrologic and meteorologic data across the basins.

In support of regional water and disaster risk management, Central Asian countries share critical transboundary hydrologic data to a certain degree; however, the existing culture, infrastructure, and capacity to collect, process, and share hydrological data, hinder transboundary hydrological forecasting and warning. The World Bank and the World Meteorological Organization have therefore proposed to develop an integrated regional hydrological and meteorological data processing and forecasting platform – CAFEWS. CAWEP has contributed significantly to development of the CAFEWS concept and to the finalization of the detailed technical design through a consultative process. CAFEWS will improve regional monitoring and forecasting of snowmelt, river flow, extreme weather, floods, and landslides, and will help better prepare for potential disasters, manage water resources, and optimize agricultural and energy production. CAFEWS will be designed around data sharing, hydrologic decision-support tools, meteorological forecasting, and building capacity and a regional community of practice. It will include Afghanistan, ingest existing Central Asia Flash Flood Guidance System (hosted and operated by Kazhydromet), and add river routing and landslide modules. The national meteorological and hydrological services of Central Asian countries have agreed to, and are fully committed to, further CAFEWS development and implementation.



CAFEWS products and their added value

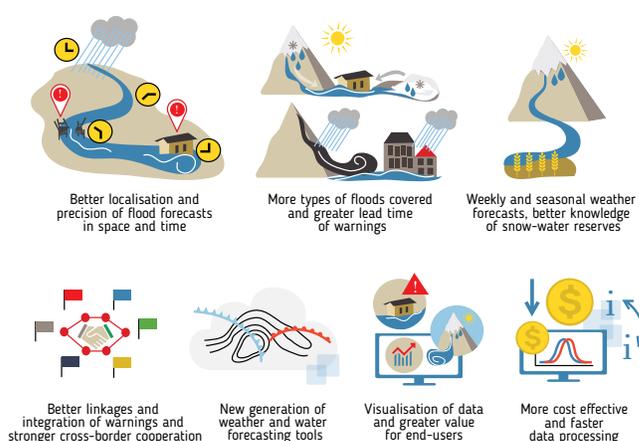


FIGURE 5. CAFEWS INFOGRAPHICS

Source: CAFEWS.

3 Armstrong et al. (2019) Runoff from glacier ice and seasonal snow in High Asia: separating melt water sources in river flow. Regional Environmental Change 19:1249–1261.

4 Emergency database statistics: https://www.emdat.be/emdat_db/



Kyrgyz delegation at the solar photovoltaic site in Samarkand, Uzbekistan, December 15, 2021.

Fostering Green Growth

All Central Asian countries as well as Afghanistan are all parties to the 2015 Paris Agreement that commits to reducing GHG emissions by 2030, and all are committed to adopting green economic growth. The geography of the region offers great potential for generating reliable, green energy.

CAWEP is supporting countries in their efforts to transition to renewable energy by enhancing the relevant knowledge base. On June 10, the World Bank presented a regional hydrogen study at the CAREC ESCC meeting. Development of a local hydrogen economy in Central Asia could create significant economic opportunities through export of hydrogen and derivatives. Hydrogen can replace fossil fuels in some carbon-intensive industrial processes and strengthen the global competitiveness of Central Asian countries through development of environmentally sustainable industries. The regional study revealed the potential for producing at least 8 million tons of hydrogen by 2050, valued at over \$8 billion.

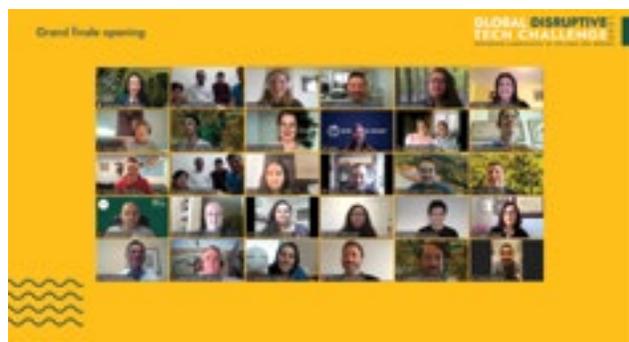
In Tajikistan, CAWEP contributed to inform the development and diversification of renewable energy infrastructure, and in the Kyrgyz Republic, CAWEP-supported preparation of a renewable energy development strategy to scale up diverse sources of green energy and to attract private sector financing via competitive auctions. On December 9–10, a workshop on renewable energy development and private sector participation was convened in Bishkek, Kyrgyz Republic. Participants from the energy and finance sectors, together with Kyrgyz parliamentarians, learned about best practices for scaling up renewable energy, preparation of renewable energy development strategies, policies, and regulations, as well as

incentives for private sector participation. The workshop was followed by a study tour to Uzbekistan for the Kyrgyz delegation to see the outcomes of Uzbekistan energy sector reforms, including for increased generation of renewable energy and its integration into the national grid. Kyrgyz officials learned from their Uzbekistan counterparts on how to create an enabling environment conducive to the private sector participation, technical aspects on grid connection and renewable energy dispatching, ensuring financial sustainability, and risk sharing between government and private sector. The workshop and study tour culminated in a Kyrgyz government request for World Bank finance for a pilot renewable energy project.

CAWEP is investing in transboundary land restoration through support to the regional RESILAND CA+ program, which includes a series of projects across Central Asia. Land degradation, including deforestation, costs an estimated 6 percent of the aggregate gross domestic product of Central Asian countries, and the cost of inaction is six times higher than the cost of action. Land degradation and subsequent river transport of sediments can negatively affect hydropower facilities. In the Kyrgyz Republic, CAWEP-supported analytical work identified priority areas for restoration using remote sensing technologies and consultations with national experts. Degradation hotspots were identified in the west and southeast of the country, and a restoration options map was generated. The assessment estimated that around 8 percent of the country area has high potential for restoration. A similar assessment is ongoing in Tajikistan. CAWEP encourages the search for innovative approaches and solutions to improve natural resource management. The Disruptive Technology Challenge, completed in April, identified the best proposals to contribute to the restoration of Aral Sea watersheds.

Social Inclusion and Gender

CAWEP promotes gender and social inclusion to empower communities. During 2021, CAKN designed a course to mainstream gender in water resource management. In March, in response to growing demand, CAKN launched a four-month online training program for high school teachers, university professors, and academic fellows on how to develop online courses. Professors were invited to create online courses together with students and young researchers. The training program brought together 30 participants from the Central Asian academic community who developed nine courses on the online learning platform related to water resource management and started using them in their teaching practice.



Disruptive Technology Challenge: grand finale opening, April 9, 2021. Photo credit: Global Landscapes Forum, Flickr.

The CAWEP supported Disruptive Technology Challenge, which was open to participants from Central Asia and beyond. It sought to identify cutting-edge solutions to address land degradation and desertification challenges in the Aral Sea region. Partnering with Global Landscapes Forum and Plug & Play (a world-leading start-up accelerator) and communicating through social media, ensured wide outreach to potential applicants and raised awareness about the Aral Sea disaster. 159 proposals were received from 28 countries across five continents; more than half were from Central Asia. In April, the grand finale of the Disruptive Technology Challenge awarded four winners for innovative solutions. The online contest used an international jury of 42 experts from the World Bank and partner organizations to competitively select twenty-four proposals. The winning projects included a process to stabilize dry salty lands, an approach for planting flowering trees, a Tajikistan Women Water Forum's initiative, and a Sustainable Pasture Management app.

Regional Engagement

In 2021, CAWEP concluded its series of bilateral consultations ("Listening Tour") with senior officials of Central Asian countries to understand national priorities and opportunities, and to gauge country perspectives

on regional water cooperation. The final meetings were with government agencies and development partners in Turkmenistan. Planned bilateral consultations with Afghanistan officials were cancelled following regime change in Afghanistan. Based partly on findings of the Listening Tour, a CAWEP regional engagement strategy for water security was developed and subsequently endorsed by the CAWEP Advisory Committee.

A priority of the regional engagement strategy is support to the IFAS institutional reform process spear-headed by the Executive Committee of IFAS and an IFAS RWG. A World Bank International Expert Team was mobilized by CAWEP in May to guide RWG deliberations, share global good practice in transboundary water governance, and to facilitate bilateral consultations. Given ongoing travel restrictions, initial RWG meetings supported by the World Bank International Expert Team were conducted in hybrid mode.

In 2021 CAWEP continued its work to coordinate donor activities, including through regular meetings of the informal Almaty-based group of development partners, participation in EU coordination meetings, and bi-annual development partner coordination meetings. These various meetings facilitate exchange of news, information, and relevant knowledge, and identify opportunities for collaboration. On June 9, a regional meeting of development partners discussed ongoing and new regional initiatives and the various water programs in the region, including CAWEP, the Asian Development Bank supported CAREC Water Pillar, and the USAID Regional Water and Vulnerable Environment (WAVE) activity. On October 18, EC-IFAS hosted a development partner coordination meeting, and subsequent Joint Statement on implementation of the ASBP-4 was issued. Meeting participants agreed to strengthen donor coordination, establish a dialogue platform, and share information on ongoing activities and plans in order to synergize implementation. EC-IFAS agreed to convene future meetings on a quarterly basis, with initial support from CAWEP.



Development partner coordination meeting, Dushanbe, Tajikistan, October 18, 2021.

CAWEP also supports technical knowledge sharing and networking in WSS, irrigation modernization, landscape restoration, hydromet services, and IWRM education, some of which is supported by CAKN. While the CAWEP grant supporting CAKN closed in September, the clear evidence of CAKN impact and continued strong demand, led to the decision to maintain the CAKN “brand” and to continue CAKN activities under the umbrella of the Facilitation of Regional Dialogue activity. A key focus for CAKN is ensuring sustainability of ongoing efforts, including through building the capacity of relevant regional institutions for delivering capacity building programs and managing knowledge networks.

The modeling carried out as part of the Central Asia Regional Electricity Trade and Market Development activity confirmed the potential benefits that could arise from electricity trade and the need to strengthen cooperation and energy interconnectivity among Central Asian countries. Trade could bring increased energy security and system reliability, more efficient and effective use of infrastructure, economies of scale in investments, greater renewable energy penetration and reduced cost of supply for consumers. Next steps will include bringing countries and development partners together to advance this important agenda forward.





PROGRAM MANAGEMENT, FINANCES, AND COMMUNICATION

CHAPTER 3

Program Management Overview

CAWEP is managed by a program manager, pillar leaders, and a liaison officer (Figure 6). The program manager oversees program implementation, reporting, dissemination, and outreach, as well as leading coordination with donor partners and ensuring CAWEP stakeholders are kept informed. Pillar leaders provide advice on the implementation of activities and liaise with task teams to ensure timely and qualitative delivery of activities. A new Pillar Leader for Energy Security was appointed in October 2021. The liaison officer supports program coordination, trust fund management, donor coordination, monitoring and evaluation, and coordination of communications. The program management and administration costs for 2021 were \$186,790, or 6 percent of total 2021 disbursements.

Strategic guidance is provided to CAWEP by an Advisory Committee of donor partners and World Bank (WB) management. The Advisory Committee met in May and September in 2021. In May, the Advisory Committee endorsed mid-term review recommendations (see details below). In September, a revised Results Framework and a regional engagement strategy were presented. A no-cost extension of CAWEP until November 2023 was endorsed.

Implementation is overseen by a team of WB managers and directors. Several WB managers and directors with oversight responsibility for CAWEP rotated in early and mid-2021, including the Regional Director for Central Asia, Country Manager for Tajikistan and Turkmenistan, and regional Practice Managers for Water and Energy. The CAWEP team provides regular internal briefings on CAWEP progress to management.

Mid-term Review

The MTR conducted in March–April 2021 confirmed the high relevance of CAWEP to donor priorities, country needs, the WB’s regional strategy for Central Asia, and noted good coherence with other regional initiatives. Overall, program progress was assessed as moderately satisfactory. CAWEP was more effective at the national level rather than the regional level. This is reflected in the progress towards program-level indicators where stronger progress was achieved on the national-level indicators and the shortcomings noted in relation to regional targets.

The MTR provided nine recommendations: (i) consider a one-year program extension; (ii) scale up activities to meet regional cooperation targets; (iii) adjust the program results framework; (iv) enhance internal communication; (v) discuss barriers related to working across regional Vice Presidencies; (vi) maintain efficient program management structure and close connection with WB operations; (vii) report more effectively on regional and climate impacts; (viii) strengthen CAWEP role as regional convener; and (ix) consider sustainability of some program outputs.

In response to these recommendations, the WB proposed a no-cost extension until November 2023 to enable completion of ongoing activities and utilization of the remaining funds to advance achievement of the program development objective. The donors agreed to this extension and the Trust Fund Administrative Agreements were amended accordingly. Additional effort is now being put into various aspects of regional cooperation and strengthening CAWEP’s role as regional convener. The program results framework was revised in line with the MTR recommendations, including adjusting some targets (Annex 3). The revised results framework was endorsed by the Advisory Committee in September. Internal communication and reporting processes are being continually improved.



FIGURE 6. CAWEP GOVERNANCE AND MANAGEMENT

Allocation and Disbursement of Funds

To-date, CAWEP has supported 32 activities (including program management and program communications) worth \$11.56 million. In 2021, seven activities were completed, and one new activity commenced. Additional funds were allocated to the Facilitation of Regional Dialogue activity and to Communications and Outreach, bringing total allocations to \$11.56 million, or 90 percent of the total program budget. \$9.1 million (71 percent) of program funding is allocated to bank-executed trust fund (BETF) activities, and \$2.5 million (19 percent) is allocated to three recipient-executed activities. The recipient-executed activities support preparation of investments in Kazakhstan, Tajikistan, and Uzbekistan. 10 percent of program funds have not yet

been allocated. Table 1 shows the distribution of activities and funding by pillar and theme, and Table 2 shows the distribution across the region.

The Water Security Pillar accounts for 39 percent of allocated fund (with over one-third of this being a single recipient-executed grant); the Energy Security and the Water-Energy Linkages Pillar each account for around one quarter of allocated funds (Figure 7). Disbursements and commitments to-date indicate steady progress (Figure 8). Cumulative disbursements reached \$7.2 million (56 percent of allocated funds) and annual disbursement was one-third higher than in 2020 (Figures 9 and 10).

Pillar	Data and Diagnostics		Institutions, Capacity Building, and Dialogue		Supporting Investments		Total	
	No.	\$M	No.	\$M	No.	\$M	No.	\$M
Water Security	1	0.23	7	2.49	2	1.80	10	4.52
Energy Security	3	0.58	6	1.10	4	1.25	13	2.93
Water-Energy Linkages	4	1.27	3	1.65	0	0.00	7	2.92
Totals	8	2.08	16	5.24	6	3.05	30	10.37

TABLE 1. NUMBER OF ACTIVITIES AND FUNDING BY PILLAR AND THEME

Country/Region	\$M
Afghanistan	0.24
Kazakhstan	2.00
Kyrgyz Republic	0.80
Tajikistan	2.18
Turkmenistan	0.00
Uzbekistan	1.03
Total national funding	6.25
Regional funding	4.12
Total	10.37

TABLE 2. REGIONAL DISTRIBUTION OF FUNDING

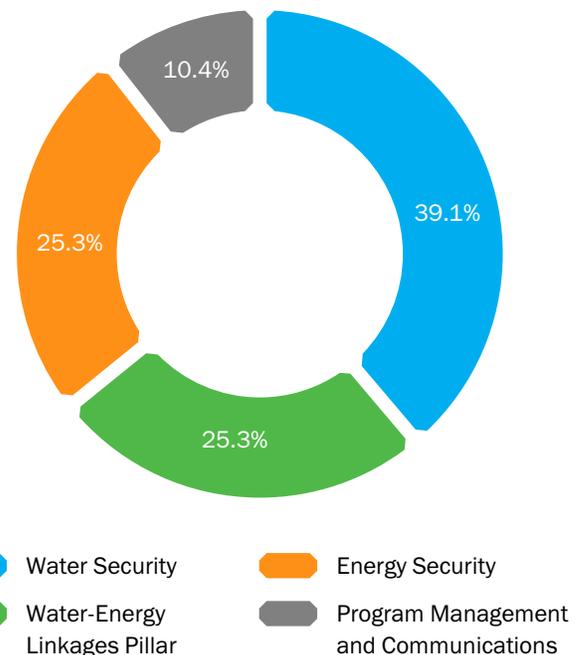


FIGURE 7. FUNDS ALLOCATION BY PILLAR

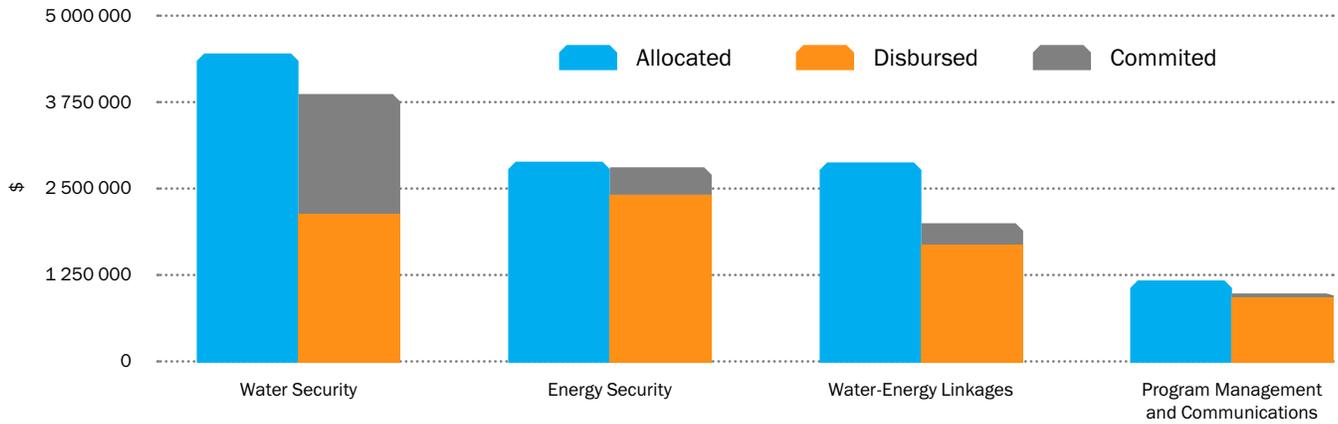


FIGURE 8. DISBURSEMENTS AND COMMITMENTS BY PILLAR

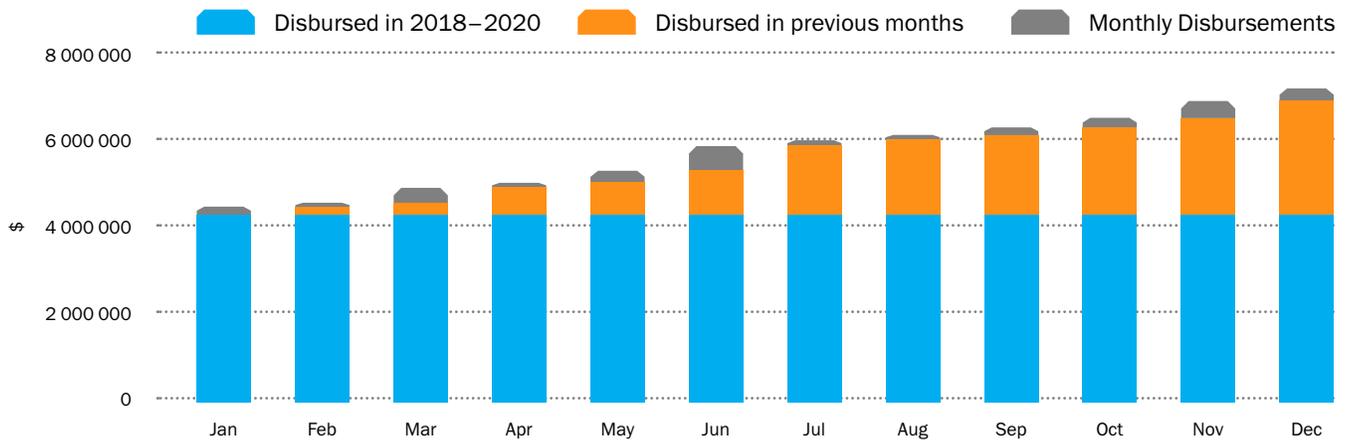


FIGURE 9. CUMULATIVE DISBURSEMENTS BY MONTH

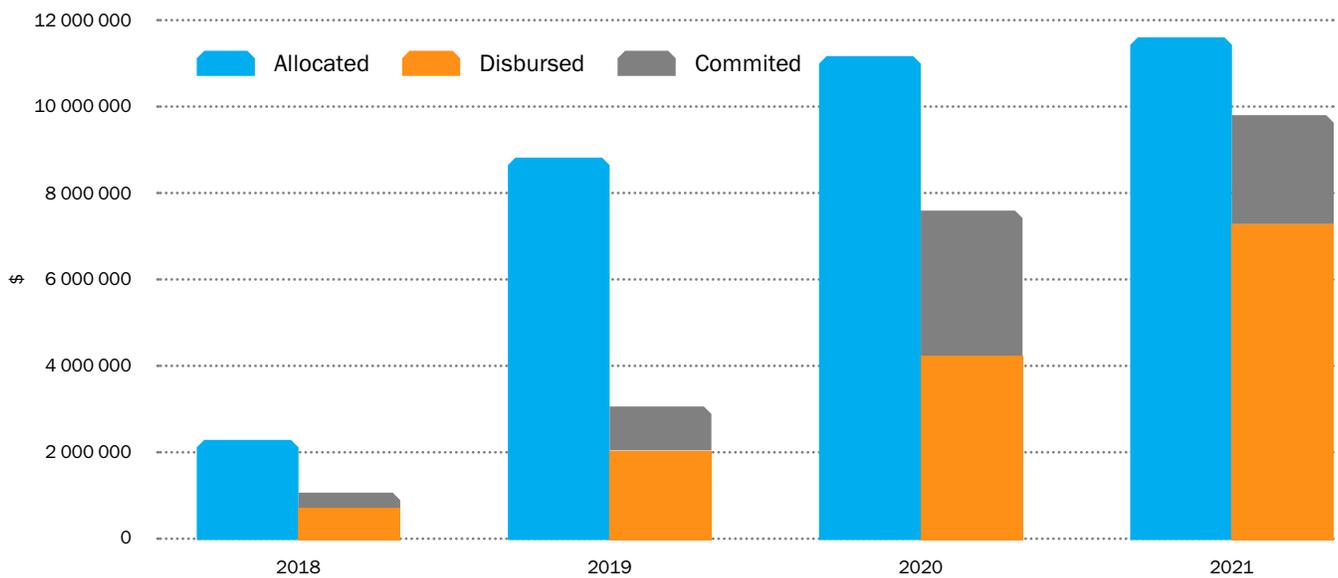


FIGURE 10. ANNUAL FINANCIAL PROGRESS

Communication and Outreach

CAWEP communications facilitate knowledge-sharing and increase stakeholder understanding of CAWEP work. CAWEP's Outreach and Dissemination activity is guided by a strategic communications framework, and the program's Communication and Visibility Plan reflects the requirements of EU-funded programs.

Online Engagement

The CAWEP webpage ([English](#) and [Russian](#)) is updated regularly with new information and announcements. During 2021 it received over 3,000 page-views. From January to December, 39 posts across the World Bank Facebook pages for Kazakhstan, Kyrgyz Republic, Tajikistan, Uzbekistan, and Europe and Central Asia (Figure 11) reached over 45,000 people. On Twitter, 242 tweets received nearly 1,500 likes and over 600 retweets with a potential reach of over 200,000 people.

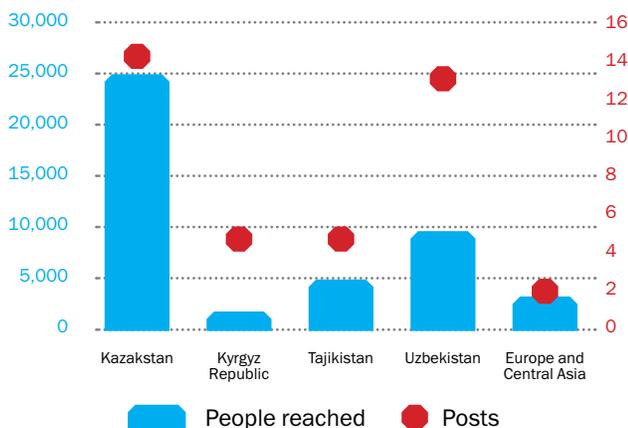


FIGURE 11. FACEBOOK ACTIVITY

Communications Products

- Three newsletters
- Twenty-four media digests focusing on water, energy, and related topics
- Press releases:
 - Innovative Restoration Plans for Aral Sea Region Announced at Global Disruptive Tech Challenge ([English](#) and [Russian](#)), April
 - Uzbekistan to Reform and Green its Electricity Sector with World Bank Support ([English](#) and [Russian](#)), June
- Feature stories and articles:
 - Promoting Women's Participation in Water Resource Management in Central Asia ([English](#) and [Russian](#)), January

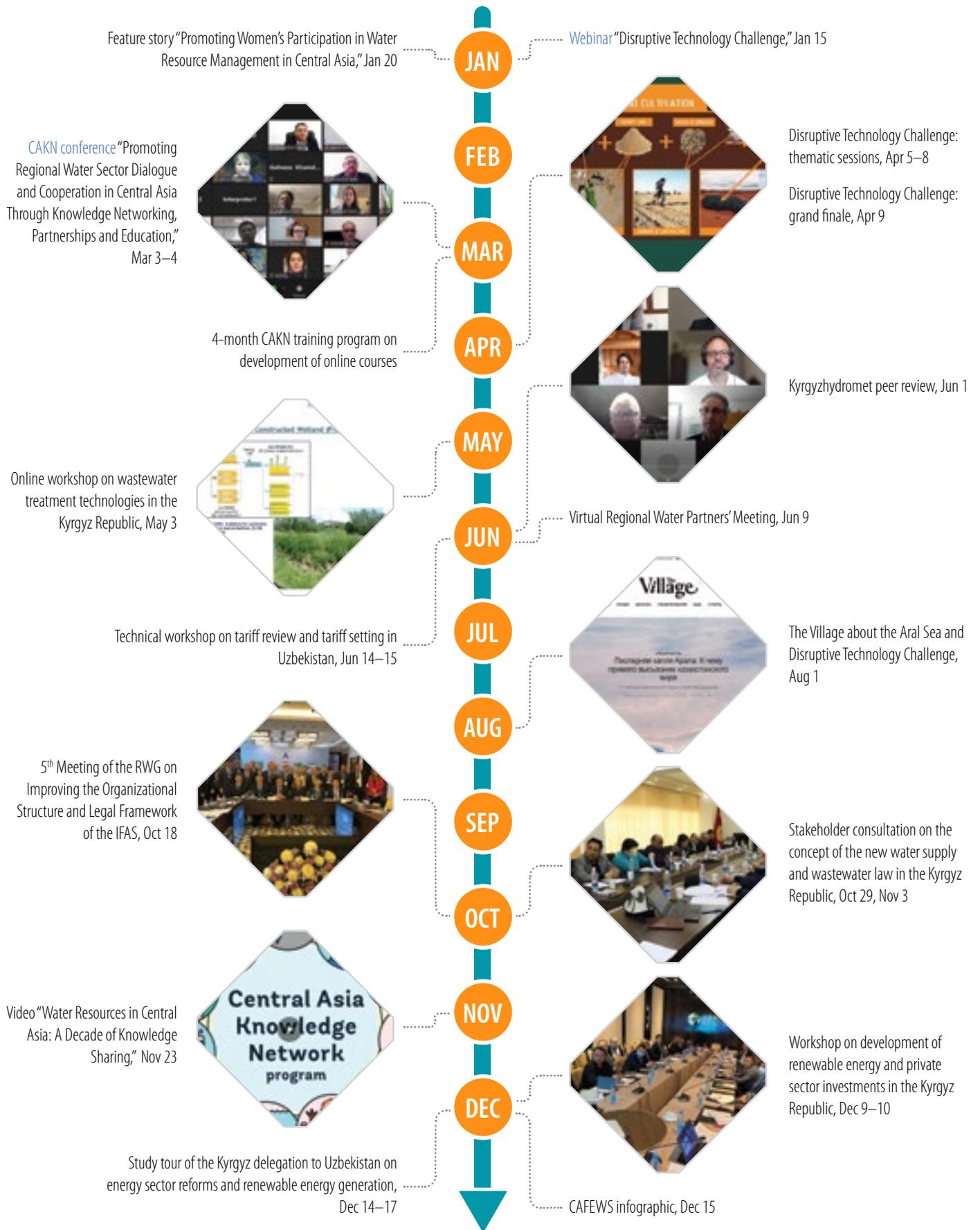
- Improving Knowledge Exchange on Water Issues in Central Asia ([English](#) and [Russian](#)), March
- In Search of a Desert Oasis: Innovative Projects Imagine a Promising Future for the Aral Sea and Central Asian Drylands ([English](#) and [Russian](#)), June
- The Village about the Aral Sea and Disruptive Technologies Challenge: [Последняя капля Арала: К чему привело высыхание казахстанского моря](#), August
- Television and video:
 - Disruptive Technology Challenge 2021 Grand Final, Uzreport World, April ([English](#))
 - [Water Resources in Central Asia: A Decade of Knowledge Sharing](#), November
 - CAFEWS, December ([English](#))
- Infographics:
 - Central Asian Flood Early Warning System ([English](#) and [Russian](#)), December.

Looking Ahead

The MTR recommendations continue to guide program adjustments for greater efficiency and impact. In 2022, CAWEP will approve activities to utilize the remaining unallocated funds, with a focus on enhancing the regional dimension of the program and scoping key water-energy nexus issues.

In late 2022, planning will commence for major regional event in early 2023, to showcase CAWEP achievements and facilitate transfer of key networks to regional partners for continuity. During 2022, the World Bank will also initiate discussions with donor partners on the program focus of a potential fourth phase of CAWEP.

Figure 12. 2021 Program Events and Outreach





ANNEXES

ANNEX 1. FOCUS AREA, THEMES, AND ACTIVITIES BY PILLAR

WATER SECURITY PILLAR

Focus Area	Theme	Activity	Countries	TF No.
Regional Water Management	Institutions, Capacity, Dialogue	Strengthening Service Delivery of Central Asia (CA) National Hydrometeorological Agencies	CA, AF	OB0550
		Strengthening Capacity in AF for Greater Collaboration with TJ on Hydromet, Flood Risk Management and Early Warning Services	AF, TJ	0A9176
National Water Management	Institutions, Capacity, Dialogue	Regional Water Resources Management in CA	CA	OB4565
		Human Water Security: Strengthening WSS at Regional Level	CA	OB1277
Sub-Basin Water Management	Data, Diagnostics	Vakhsh Integrated River Basin Management	TJ	0A7025
	Supporting Investments	North Aral Sea Engagement	KZ	OB2375
		Support for Preparation of the North Aral Sea Development and Revitalization Project	KZ	OB2724
Irrigation Modernization	Institutions, Capacity, Dialogue	Sharing Information and Exposure to Pave the Way to Irrigation Modernization	CA	0A9391
		Strengthening Irrigation Management Across CA	CA	OB4552
Capacity Building	Institutions, Capacity, Dialogue	CA “Solutions for Water” (S4W) Living Lab	CA, AF	OB2730

ENERGY SECURITY PILLAR

Focus Area	Theme	Activity	Countries	TF No.
Regional Power Trade	Institutions, Capacity, Dialogue	CAREC Energy Sector Coordination and Cooperation	CA, AF	0A7267
		Capacity Development for Regional Cooperation in Power System Planning and Operations	CA, AF	0A7333
		Analysis of Synchronized Operation of AF and CA Power Systems	AF	0A9869
	Data, Diagnostics	CA Regional Electricity Trade and Market Development	CA, AF	0A8743
National Energy Sector Capacity	Institutions, Capacity, Dialogue	Energy Sector Strengthening	TJ	0A9034
	Supporting investments	Support for Preparation of the Rural Electrification, Sebzor HPP and Khorog-Qozideh Power Transmission Line Projects (RETF and BETF)	TJ	0B1004 0B1244
		Project Preparation for Uzbekistan Electricity Transmission System Modernization and Market Development (RETF and BETF)	UZ	0B3778 0B4451
	Data, Diagnostics	Options for Leveraging Commercial Financing for Power Generation in TJ	TJ	0B4727
Renewable Energy	Data, Diagnostics	Uzbekistan Small and Medium Hydropower Development Program	UZ	0A7213
	Institutions, Capacity, Dialogue	Integrated Hydropower Development in the Naryn River Basin	KG	0A8728
		Support to Renewable Energy Development in Kyrgyz Republic	KG	0B5552/ 0B5553

WATER-ENERGY LINKAGES PILLAR

Focus Area	Theme	Name	Countries	TF No.
Regional Coordination and Capacity Building	Institutions, Capacity, Dialogue	Facilitation of Regional Dialogue and Development Partnerships on Water & Energy Security in CA	CA, AF	0A7071
		CA Knowledge Network	CA, AF	0A7242
	Data, Diagnostics	CA Water and Energy Data Platform	CA, AF	0A8939
Environment Management	Data, Diagnostics	TJ Integrated Landscape-Catchment Management	TJ	0B0866
		KG Integrated Landscape-Catchment Management	KG	0B2684
		Strategic Environmental Assessment of the Power Sector Expansion in TJ	TJ	0B4132
	Institutions, Capacity, Dialogue	Disruptive Technologies for Landscape Restoration Along the Aral Sea Watershed in KZ and UZ	KZ, UZ	0B2683

ANNEX 2. SUMMARY OF ACTIVITIES

Water Security Pillar

Regional Water Management

Strengthening Service Delivery of Central Asia National Hydrometeorological Agencies

TF0B0550; \$500K; Jun '19 – May '22

This activity is assisting national hydromet agencies deliver improved, demand-driven information services, including weather and hydrologic forecasts, to support transboundary cooperation. The activity complements current WB and partner projects that are strengthening hydromet services. Sub-activities include: (i) technical assistance to national hydro-meteorological agencies; (ii) analysis of gaps and development of a strategic capacity-building and service delivery plan for Turkmenhydromet; (iii) assessments for an Amu Darya flood forecasting system; (iv) gap assessment and diagnostic for Kyrgyzhydromet; (v) strategic support for Uzhydromet modernization, and (vi) awareness raising for CAFEWS. CAFEWS is a regional multisystem platform for improved flood and drought forecasting being operationalized under the WB-financed [Central Asia Hydrometeorology Modernization Project](#), that will include the Afghanistan portion of the Amu Darya Basin. In 2021, the activity completed the Kyrgyzhydromet diagnostic review and provided technical support and analytics to finalize CAFEWS design. Agreement was obtained from all Central Asian countries for CAFEWS, and all hydromet agencies confirmed engagement, agreed on system design, and appointed a Steering Committee and working group members. Capacity building work and modernization/investment needs planning commenced for Turkmenhydromet and Uzhydromet. Regional numerical weather prediction modelling commenced on a commercial cloud computing platform.

Strengthening Capacity in Afghanistan for Greater Collaboration with Tajikistan on Hydromet, Flood Risk Management, and Early Warning Services

TF0A9176; \$255K; Dec '18 – Nov '21

This activity advanced the integration of Afghanistan into hydromet data exchange mechanisms being developed for Central Asia. It strengthened Afghanistan–Tajikistan collaborations to improve the exchange of hydrographic and meteorological data. These data are essential for identifying and mitigating the risks of flash floods, landslides, and drought, and provide a basis for longer term planning to effectively manage transboundary water resources. An Afghanistan Hydromet Atlas was prepared for decision-makers and hydromet service users. The atlas compliments the [Central Asia Hydromet Atlas](#), with easy-to-understand overviews of weather, water, and climate in Afghanistan, as well as details of Afghan hydrological and meteorological services. An updated Afghanistan–Tajikistan hydromet data exchange road map was prepared to guide activities in both countries, across hydrological and meteorological data exchange, modelling and scenario development, capacity building and training; and expansion into water quality monitoring and linkages to programs, such as CAFEWS. Afghanistan–Tajikistan consultations planned for mid-2021 were canceled following regime change in Afghanistan.

National Water Management

Regional Water Resources Management in Central Asia

TF0B4565; \$400K; Jan '21 – Jun '23

This activity is building confidence and capacity for safer management of water infrastructure and improved conjunctive management of surface water and groundwater. The activity is assessing and documenting existing procedures/protocols for joint operation and maintenance of water infrastructure, and for financing rehabilitation of shared infrastructure. It is providing advisory support to the Government of Uzbekistan to review the national regulatory framework to inform legislation covering the safety of hydraulic structures. The activity is supporting a review of institutional, legal, and technical aspects of groundwater management across the five Central Asian countries. Following the review, capacity building events will be convened for relevant agencies.

Human Water Security: Strengthening WSS at the Regional Level

TFOB1277; \$465K; Oct '19 – Jun '22

This activity is strengthening WSS services and building national and regional WSS resilience to improve social stability and human capital. Now in its second phase (mid-2020 onwards) the activity is strengthening national institutions in the Kyrgyz Republic, Tajikistan, and Uzbekistan. In the Kyrgyz Republic, international experts complemented work under the [Sustainable Rural Water Supply and Sanitation Development Project](#) to develop new water supply and wastewater legislation, review and update design norms, advance WSS digitalization, and provide capacity-building and advisory services for small-scale sanitation development. In the Kyrgyz Republic, stakeholder consultations were held to inform the draft legislation, and three workshops on small-scale sanitation introduced participants to wastewater treatment technologies for small settlements. In Tajikistan, a series of consultations with the interstate working group was convened, a policy note on short- and long-term institutional reforms for the National Water Supply and Sanitation Program was prepared for government, and a Public Expenditure Review was conducted for finalization in 2022. In Uzbekistan, support was provided for improving the tariff calculation tool and for revising process for setting tariffs, and an online workshop (37 participants from 14 utilities) was convened to strengthen WSS tariff reviews and tariff setting processes.

Sub-Basin Water Management

Support for Preparation of the North Aral Sea Development and Revitalization Project

TFOB2724 RETF \$1,500K; Dec '20 – Apr '23; and TFOB2375 BETF \$300K; Mar '20 – Jun '23

These RETF and BETF grants are supporting the Government of Kazakhstan's preparation of the \$161.5 million [North Aral Sea Development and Revitalization Project](#) that aims to improve water resources management in North Aral Sea-Syr Darya Basin, and the planning and development of natural resource-based economic activities in the Kyzylorda region of Kazakhstan. The project will help restore wetlands and reduce the impacts of windblown salt and dust from the seabed. The RETF is financing the project feasibility study, detailed designs, and environment and social impact assessments. An interim feasibility study report was drafted, and procurement for environmental and social impact assessments was launched. In 2021, the BETF prepared a water balance for the Syr Darya Basin using Earth observations within a "Scalable Water Balance from Earth Observations" modelling framework.

Irrigation Modernization

Strengthening Irrigation Management Across Central Asia

TFOB4552; \$400K; Nov '20 – Oct '22

This activity is focused on improving water productivity and irrigation management, complementing current WB irrigation investments. Technical assistance and analyses include: assessment of progress and challenges in sustainable irrigation and drainage for state and non-state actors, to inform water policy in Kazakhstan and Uzbekistan; public expenditure reviews in Tajikistan and Uzbekistan; and just-in-time support to governments and task teams on irrigation innovation including energy efficiency, water-efficient technologies, and options for public-private partnerships. The activity is surveying irrigation and drainage service providers (including water user associations) in four Central Asian countries to assess and benchmark their performance. The survey will be complemented by a remote sensor-based irrigation performance assessment that will support evidenced-based irrigation planning and management. A user-friendly interactive web application and supporting user manuals are under development. The activity is informing the Kyrgyz [Climate Resilient Water Services Project](#) and the Tajikistan [Strengthening Water and Irrigation Management Project](#) and will help monitor improvements in irrigation service delivery. In Uzbekistan, an irrigation chapter was prepared for the [Second Agricultural Public Expenditure Review](#) as was an Irrigation Policy Brief summarizing the challenges in the irrigation and drainage sector and providing recommendations for strengthening irrigation management.

Capacity Building

Central Asia “Solutions for Water” (S4W) Living Lab Project

TF0B2730; \$250K; Apr '20 – Jun '22

This activity is improving cross-country cooperation and linking water users, academia, students, local authorities, and small business, through a series of “Living Labs.” Stakeholders are brought together to identify innovative solutions to local water management problems, and these solutions are then piloted and scaled-up and/or disseminated for implementation elsewhere. The first lab proposed methods for takyr conservation, protection, and restoration. The results were presented at the [CAKN conference](#) in March 2021. The second lab assessed sedimentation in Ruslovoye Reservoir, forecast sedimentation out to 2030, and developed recommendations for cost-effective sediment removal or mitigation. This work contributed to a transboundary demonstration under the second phase of EU-funded Central Asian Dialogue on Promoting Intersectoral Financing based on the Water-Energy-Food Relationship project. In Tajikistan, a third lab reviewed irrigated agriculture in the Sughd region, including pump station operations in the Zafarabad district. The results will inform pump station modernization using energy-saving technologies. A Kazakhstan lab is supporting the Kazakh Scientific Research Institute of Water Economy in piloting innovative and practical solutions for restoring the productivity of degraded irrigated lands, and in sharing the results with farmers in the Jambyl and Turkestan oblasts.

Energy Security Pillar

Regional Power Trade

CAREC Energy Sector Coordination and Cooperation

TF0A7267; \$199K; Mar '18 – Apr '21

This activity supported engagement with CAREC to enhance regional energy sector dialogue and to coordinate donor support. This included engagement with the CAREC ESCC – a knowledge sharing forum for CAREC countries and development partners. In 2021, a high-level scoping of the technical feasibility and economic viability of green hydrogen production, use, and export in Central Asia, was conducted. This highlighted the large potential for cheap renewable energy as a basis for cheap hydrogen production. Developing the hydrogen economy would require regional cooperation, especially on infrastructure. Countries would need to expand power system interconnections to increase renewable energy supply in all countries. An overview of the assessment was presented to a meeting of the CAREC ESCC.

Analysis of Synchronized Operations of Afghanistan and Central Asia Power Systems

TF0A9869; \$40K; Mar '19 – Dec '21

This activity supported the World Bank-financed Herat Electrification Project in Afghanistan by developing a roadmap for synchronizing Afghan and Central Asian power systems. It enhanced DABS' capacity to manage grid synchronization and informed preparation of the Afghan grid code and relevant policies and investment plans. Following regime change in Afghanistan all disbursements in the Afghanistan portfolio were suspended and this grant was closed. Planned consultations on grid synchronization between DABS, Coordinating Dispatch Center Energia (CDC Energia) and Central Asian national dispatch centers had to be cancelled.

Central Asia Regional Electricity Trade and Market Development

TF0A8743; \$193K; Oct '18 – May '21

This activity was financed by PACT and coordinated with the USAID work on regional power system modelling and electricity market design. It assessed opportunities for intra- and inter-regional energy market integration and trade, reviewed energy demands, explored trade options, assessed trade barriers, and developed a sector action plan. An assessment of the economic benefits of regional electricity trade out to 2030 under different scenarios indicated increased regional trade could be worth up to \$6.4 billion. With the CASA-1000 and Turkmenistan-Uzbekistan-Tajikistan-Afghanistan-Pakistan projects connecting Central Asia power grids with South Asia, an additional \$2.6 billion in benefits could accrue. The regional

model used in the assessments could be used to assess the economic feasibility of new regional projects (generation, transmission), regional renewable energy integration, or the value of regional connectivity for decarbonizing energy systems.

National Energy Sector Capacity

Energy Sector Strengthening

TFOA9034; \$230K; Nov '18 – Feb '22

The activity carried out detailed modelling of the reduction of electricity supply from Nurek HPP under various scenarios of reservoir sedimentation. An updated assessment of the financial standing of Barqi Tojik Joint Stock Holding Company was conducted considering the macroeconomic implications of COVID-19. These analyses helped to finalize assessments required to prepare the Government Program for Financial Recovery of Barqi Tojik 2022–2031.

Support for the Preparation of the Rural Electrification, Sebzor HPP, and Khorog-Qozideh Power Transmission Line Projects

TFOB1004 RETF \$500K; TFOB1244 BETF \$150K; Oct '19 – Dec '21

The RETF grant supported geological and geotechnical assessments as a part of the feasibility studies for the Sebzor HPP Project. It also supported environmental and social impact assessments, and biodiversity management plans for Sebzor HPP. For the Khorog-Qozideh Transmission Line Project, and the Rural Electrification Project, the RETF supported development of environmental and social management frameworks, resettlement policy frameworks, a biodiversity management plan, as well as detailed design and bidding documents. The BETF grant helped achieve the joint decision by development partners (KfW, EU, SECO, and USAID) to support electrification of the settlements in GBAO through power generation (Sebzor HPP, small HPP micro-grids, solar, wind), battery storage, transmission (Khorog-Qozideh transmission line), and distribution projects. The work leveraged \$86 million from development partners to promote electrification of settlements in GBAO and Khatlon region and to strengthen the capacity of the Pamir Energy Company and the Barqi Tojik Energy Sector Project Management Unit.

Project Preparation for Uzbekistan Electricity Transmission System Modernization and Market Development

TFOB3778 RETF \$500K; TFOB4451 BETF \$100K; Nov '20 – Jun '22

These activities, financed through PACT, are helping modernize the planning and operations of Uzbekistan's power transmission system by introducing digital technologies and strengthening institutional capacity of the National Electric Grid Joint Stock Company and the regional system operator (CDC Energia). The RETF grant is supporting the feasibility study and technical specifications for introduction of digital technologies into the national grid, as well as strengthening the capacity of the national grid company and the regional operator. Supervisory Control and Data Acquisition (SCADA)/Energy Management System (EMS) and modern fiber optics telecommunication network are critical for the national operator to ensure stable supply and to underpin regional power system operations and future electricity market integration. The work is informing the design of a \$125 million component of the Uzbekistan [Electricity Sector Transformation and Resilient Transmission Project](#). In 2021, a draft feasibility study for SCADA/EMS and fiber telecom network was prepared despite difficulties due to various COVID restrictions. With the grant's further support, the package's tender was launched in September 2022. In the meantime, the BETF grant supported the preparation of the feasibility study and capacity development in National Electric Grid company through mobilizing international experts.

Options for Leveraging Commercial Financing for Power Generation in Tajikistan

TFOB4727; \$160K; Dec '20 – Jan '23

The Government of Tajikistan has adopted a Program for Financial Recovery of Barqi Tojik for 2022–2031. The program is critical for mobilizing donor support for electricity sector investments, including \$80 million of additional financing under the Power Utility Financial Recovery Program for Results, and around \$140 million financing from the Asian Development Bank, European Bank for Reconstruction and Development, and EU for improvement of metering and billing infrastructure in eight major urban centers, as well as for improvement of electricity distribution efficiency. The activity supported review of legal and

regulatory obstacles and evaluated options for financial structuring for private investments in electricity generation, including for Rogun HPP – a \$5 billion project with regional dimensions. A roadmap for the Electricity Generation Expansion Plan (with policy, legal, and regulatory recommendations) was prepared.

Renewable Energy

Support to Renewable Energy Development in Kyrgyz Republic

TF0B5552 & TF0B5553; \$200K; '21 – Jun '22

This activity is analyzing barriers to renewable energy development and identifying options for their removal. It is supporting development of a pilot grid-connected solar project and has identified the regulations and institutional frameworks needed to achieve national energy security, including from renewable sources. A workshop on renewable energy and private sector investments was conducted, followed by a study tour to Uzbekistan to learn about renewable energy development. The activity is helping to conceptualize the Renewable Energy Scale-Up Project and assisting government prepare the “Transforming the Energy Sector of the Kyrgyz Republic” white paper.

Water-Energy Linkages Pillar

Regional Coordination and Capacity Building

Facilitation of Regional Dialogue and Development Partnerships

TF0A7071; \$850K; Mar '18 – Jul '23

This activity supports engagement with regional institutions, governments, and development partners. An additional allocation of \$400K was endorsed by the Advisory Committee in September to support activities outlined in a Regional Water Cooperation Engagement Strategy that was prepared in 2021 and endorsed by the Advisory Committee. The activity has three parallel but interrelated components: (i) supporting the IFAS reform process and dialogue among countries on regional water cooperation, (ii) supporting CAKN that closed as a stand-alone activity in October; (iii) coordinating between development partners to develop a shared long-term vision, improve efficiencies, and identify synergies. The IFAS reform process is a comprehensive five-stage process requiring extensive deliberations by a RWG to reach agreement among all countries. A WB International Expert Team was mobilized in May 2021, comprised of senior specialists from the Bank and internationally recognized experts from outside the Bank. The WB International Expert Team facilitated and supported a meeting of the RWG (hybrid format) in October 2021 in Dushanbe, which reached agreement on an improved IFAS structure and legal framework. A development partners coordination meeting in October was organized jointly with EC-IFAS; EC-IFAS agreed to continue to convene quarterly coordination meetings with CAWEP support.

Central Asia Knowledge Network

TF0A7242; \$400K; Mar '18 – Sep '21

This activity fostered cooperation and knowledge exchange between local and regional institutions and practitioners on water resource management, energy, and climate change. It operated at three levels: (i) strengthening national sectoral and cross-sectoral capabilities, (ii) enabling deeper regional cooperation, and (iii) developing academic and research capacity, connecting youth with practitioners, and promoting gender-related efforts in IWRM. Online trainings and knowledge-sharing events were conducted on aspects of online education and IWRM. A four-month online training program for high school trainers, university professors, and academics encouraged the finalization and adoption of their own online WRM courses. A two-day online conference in March synthesized CAKN activities for more than 80 participants from universities, research institutions, think-tanks, water agencies, and development partners, and discussed how to stimulate continued knowledge exchange and cross-sectoral partnerships. At the September Advisory Committee meeting, it was agreed to merge CAKN activities into the Facilitation of Regional Dialogue activity. Planning for CAKN activities in 2022–23, with a focus on enhancing sustainability of networks, knowledge sharing, and capacity building, commenced in late 2021.

Environment Management

Tajikistan Integrated Landscape-Catchment Management

TF0B0866; \$480K; Aug '19 – Dec '22

This activity is collecting catchment and river sediment data to inform a cost-benefit analysis of integrated landscape restoration and catchment area management that could reduce sediment inflow to Nurek and Baipaza reservoirs on the Vakhsh River in Tajikistan. The activity also supports building capacity. In 2021, COVID restrictions slowed data collection and analysis, but development of analytical frameworks progressed well. Work will conclude in 2022 as planned, after dissemination workshops with relevant agencies.

Kyrgyz Republic Integrated Landscape-Catchment Management

TF0B2684; \$400K; Apr '20 – May '22

This activity is undertaking a cost-benefit analysis of integrated landscape restoration and catchment management options to reduce sediment inflow to Toktogul Reservoir in the Kyrgyz Republic. The activity is helping identify sites for forest landscape restoration and sustainable land use. Restoration measures identified for the Naryn River Basin could also be adopted in other upland regions of the country. Technical stakeholder workshops in 2021 prioritized restoration measures and discussed and validated preliminary results. Degraded areas are being identified using remotely sensed data with field verification. A detailed review of national and sector policies (forestry, environment, agriculture, water, energy) was conducted in 2021 to identify barriers to progress and opportunities to overcome these. A map of areas suited to restoration interventions is being prepared. Cost-benefit analyses will compare costs to socio-economic and environmental benefits over 20 years.

Disruptive Technologies for Landscape Restoration Along the Aral Sea Watershed

TF0B2683; \$400K; Apr '20 – Jun '22

This activity developed innovative approaches for restoration of degraded landscapes in Kazakhstan and Uzbekistan that have potential for scale-up across Central Asia. The activity conducted an innovation challenge, established a four-month online mentorship program, and prepared an e-book on innovative approaches. The technology challenge sought proposals for innovations across four themes: agriculture and land management, sustainable forestry, socio-economic development, and information and knowledge. The challenge was implemented by the Kazakh-German University, the Global Landscapes Forum, and Plug & Play (private sector accelerator). Virtual roundtables were held in Uzbekistan and Kazakhstan, and a webinar on landscape restoration. An international panel shortlisted 24 of the 159 proposals received from 38 countries. A grand finale event in April awarded four winners from the Netherlands, Uzbekistan, Tajikistan, and Greece, as well as “rising stars” from Uzbekistan, Kyrgyz Republic, Germany, the Netherlands, and Kazakhstan. The e-book summarizing the challenge was finalized in June. The activity is also informing the Resilient Landscape Program in Central Asia (RESILAND CA+) and other lending operations under preparation.

Tajikistan – Strategic Environmental and Social Assessment of the Power Sector Expansion

TF0B4132; \$350K; Nov '20 – Jan '23

This activity is helping the Government of Tajikistan incorporate environmental and social criteria into electricity generation expansion plans, both for major hydropower projects with significant environmental and social risks, as well as thermal power projects that require significant cooling water. Generation expansion scenarios were prepared considering the environmental and social considerations. Environmental and social criteria to be used by policymakers for reviewing new generation projects were identified. The government prepared a list of potential new generation projects and requested an update of electricity generation expansion scenarios.

ANNEX 3. RESULTS FRAMEWORK

In 2021 the CAWEP Results Framework was revised in line with MTR recommendations. At the program level, minor changes were made to the structure, with the regional focus strengthened by tracking important improvements in regional institutions. Target values for program-level indicators were adjusted downwards, to provide more realistic but still challenging goals. At the pillar level, cross-program aggregation was introduced for analytical outputs, learning activities, capacity building, and dialogue processes, to support more integrated reporting of progress.

PROGRAM PROGRESS AND OUTCOMES

Program-level Outcome Indicators	2018	2019	2020	2021	Target	Outputs
Transboundary Governance: Number of regional policies, strategies, institutional frameworks informed by CAWEP analytical work	0	2	3	3	5	CAFEWS, Program for Financial Recovery of Barqi Tojik, water security brochure/regional engagement strategy
Institutional Performance: Number of regional institutions demonstrating improved performance	0	1	1	2	3	CDC Energia, CAREC ^{env}
Joint Decisions: Number of joint decisions/agreements	0	1	1	1	2	AF-TJ Memorandum of Understanding on environment protection signed September 2020 for 5-year duration
Transboundary Investment: Value of investments with Transboundary dimensions and informed by CAWEP activities (US\$B)	0	0.13	0.56	0.72	0.8	TJ Power Utility Financial Recovery Project (\$134M IDA, \$305.1M govt co-financing), TJ Rural Electrification Project (\$41.7M IDA), KZ North Aral Sea Development & Revitalization Project (\$161.5M IBRD, \$30M govt co-financing), TJ Strengthening Water and Irrigation Management Project (\$30M IDA, \$20M EU), TJ Water Supply and Sanitation Investment Project (\$45M), TJ Resilient Landscape Restoration Project (\$45M IDA), UZ Electricity Sector Transformation & Resilient Transmission Project (\$125M IDA, Comp 1), KG Climate Resilient Water Services Project (\$100M IDA), KG Renewable Energy Development Project (\$42M IDA)

PILLAR PROGRESS AND OUTCOMES: WATER SECURITY

Water Pillar Indicators	2018	2019	2020	2021	Target	Outputs
Number of analytical outputs	0	3	3	8	5	Needs assessment, maps and schematic layout for Lower Vakhsh Basin; report on AF-TJ cooperation on data exchange, flood control and early warning, Kyrgyzhydromet peer review report, tariff calculation model, hydrologic/water balance model of Syr Darya basin, Afghanistan Hydromet Atlas, concept of WSS law in KG
Number of learning activities that strengthen institutional capacity	0	4	5	12	8	Regional workshops: WSS, irrigation modernization; AF-TJ meetings on hydromet information exchange; KG economic regulation workshop, consultations on law on water supply and wastewater, SNiP, trainings on small-scale sanitation, UZ tariff workshop, Living Lab learning events
Number of institutions supported through capacity strengthening activities	0	0	0	7	6	KG Department of Drinking Water Supply and Wastewater Disposal, UzSuvTaminot, 5 national hydrometeorology agencies
Number of national-level investments identified based on CAWEP analytics	0	0	1	2	2	KZ North Aral Sea Development and Revitalization Project, TJ Strengthening Water and Irrigation Management Project

PILLAR PROGRESS AND OUTCOMES: ENERGY SECURITY

Energy Pillar Indicators	2018	2019	2020	2021	Target	Outputs
Number of analytical outputs	3	4	6	7	6	Program for financial recovery of Barqi Tojik; Financial model and expenditure program for asset maintenance; Report on improvement of power purchase agreements in TJ; Regional power system model for CA, Report on potential electricity trade and interconnections; Analysis of potential of hydropower development in KG; hydrogen study report
Number of learning activities that strengthen institutional capacity	2	6	7	9	8	Study tour for CDC Energia; study tour & workshop for Uzbekhydroenergo and Hydroproject design institute; trainings for national institutions, CAREC ESCC and Senior Officials meetings, workshop and study tour on renewable energy
Number of institutions supported through capacity strengthening activities	7	7	8	8	8	CDC Energia, Uzbekhydroenergo, Hydroproject Design Institute, KEGOC (KZ), NESK (KG), Barqi Tojik (TJ), DABS (Afghanistan), National Electric Grid (UZ)
Number of national-level investments identified based on CAWEP analytics	0	0	0	1	1	KG Renewable Energy Development Project

PILLAR PROGRESS AND OUTCOMES: WATER-ENERGY LINKAGES

Linkages Pillar Indicators	2018	2019	2020	2021	Target	Outputs
Number of analytical outputs and regional data platforms	0	3	3	6	4	Reports: "Stocktaking review and mapping of IWRM knowledge and capacity building initiatives by international partners in CA"; "Review of water-related academic and research capacity in CA countries;" Central Asia Water and Energy Data Portal, KG sedimentation assessment and report on ROAM analysis, Unified Discipline Syllabuses packages of basic professional disciplines for specialties 'Hydro amelioration' and 'Water engineering' in universities of the Central Asian countries (in Russian); Multilingual glossary of water sector related terms
Number of learning activities that strengthen institutional capacity	1	6	10	11	8	Study tour of Tajik institute to Uzbek TIAME; cross-country knowledge exchanges, webinars on online tools, CAKN conference
Number of institutions supported through capacity strengthening activities	0	0	0	2	2	CAREC ^{env} , EC-IFAS
Number of dialogue events promoting regional cooperation	8	16	22	26	25	Donor coordination meetings, bilateral consultations, 1 pre-conference event for high level conference in TJ; 2 Youth to Youth IWRM Initiatives in the context of CAY4Water; Pre-conference academic event; CAKN technical expert meeting

Aggregate Thematic Indicators	2018	2019	2020	2021	Target
Analytical outputs	3	10	12	21	15
Learning activities	3	16	22	32	24
Capacity building events	7	7	8	17	16
Dialogue process events	8	16	22	26	25

Aggregate Pillar Progress Indicators (totals of analytical outputs/ learning events, institutions supported)	2018	2019	2020	2021	Target
Water	0	7	8	27	19
Energy	12	17	21	24	22
Linkages	1	9	13	19	14

