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CENTRAL ASIA ENERGY-WATER DEVELOPMENT PROGRAM

ANNUAL REPORT 2017

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CAEWDP
CENTRAL ASIA ENERGY-WATER DEVELOPMENT PROGRAM

© 2018 The World Bank
1818 H Street NW, Washington, DC 20433
Telephone: +1 (202) 473-1000
Internet: www.worldbank.org
The 2017 CAEWDP Team
Christina Leb, CAEWDP Program Manager
Husam Mohamed Beides, Energy Development Pillar Lead
Nagaraja Rao Harshadeep, Energy-Water Linkages Pillar Lead
Pieter Waalewijn, Water Productivity Pillar Lead
Abena Akuffo-Akoto, Partnership Specialist
Manon Cassara, Field-based Program Liaison
Togzhan Alibekova, Program Assistant and M&E
Mariya Pak, Communications

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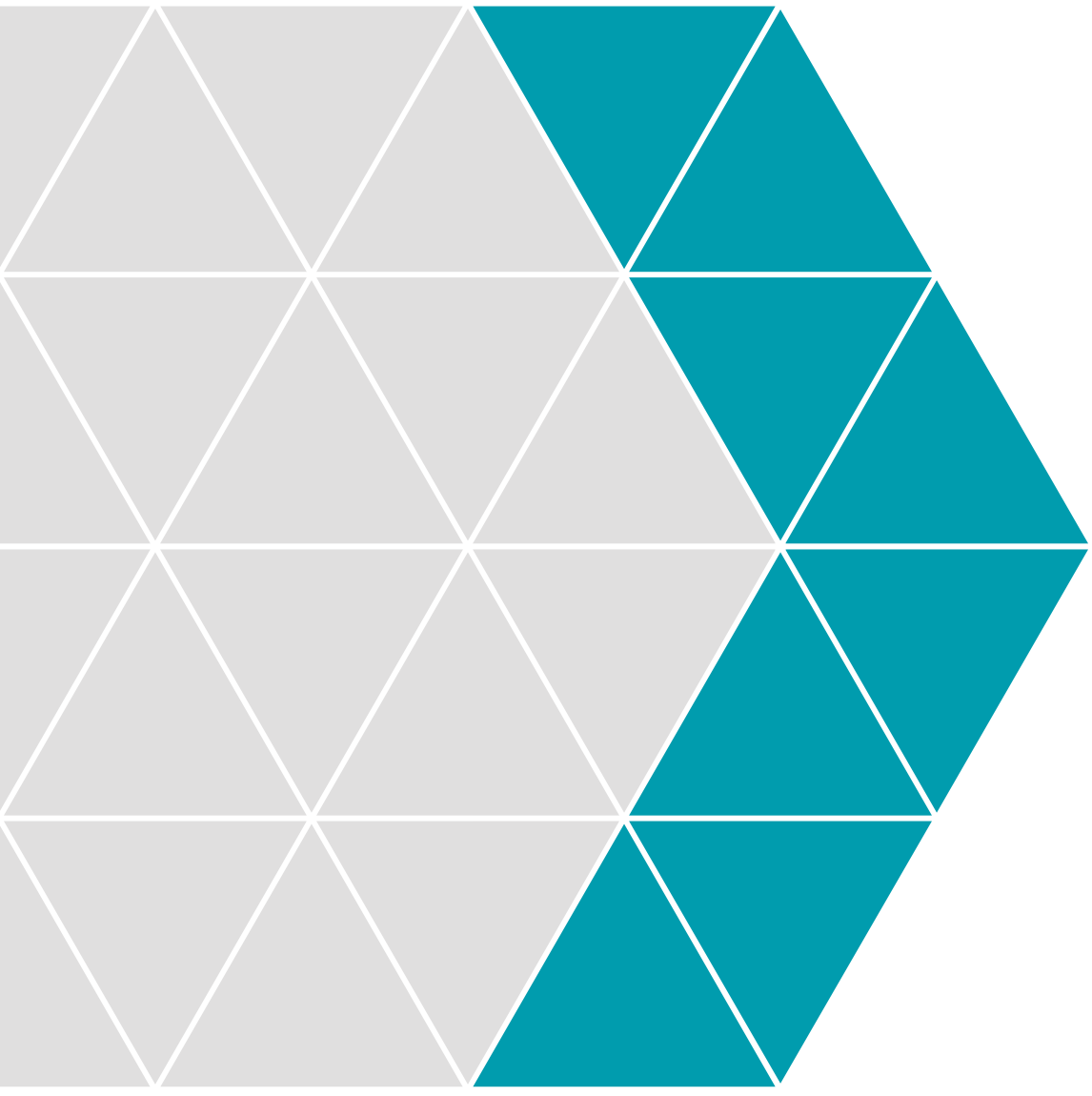

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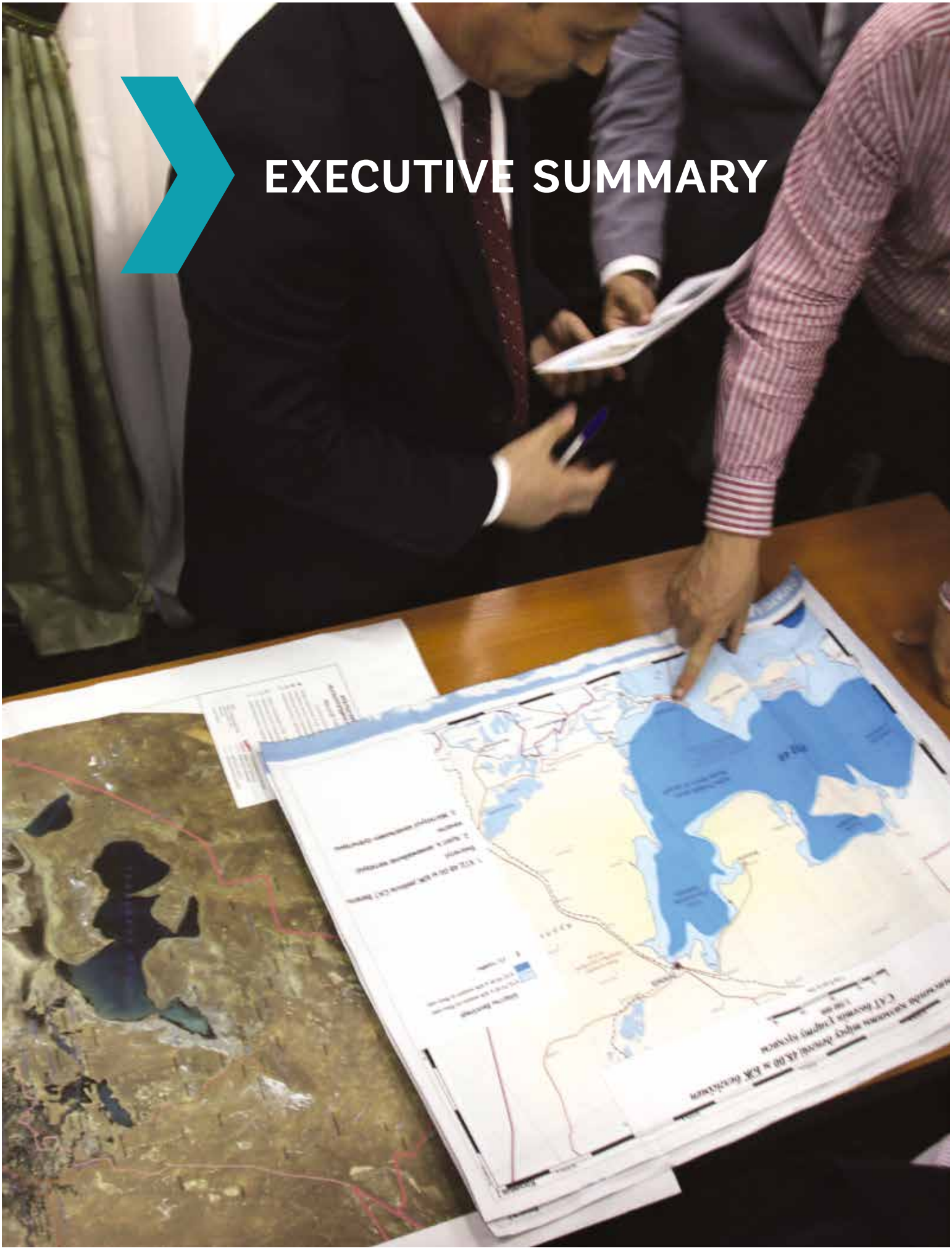
ACRONYMS AND ABBREVIATIONS

ADB	Asian Development Bank
ALRI	Agency for Land Reclamation and Irrigation
ASBP	Aral Sea Basin Program
ASBP-2	Second Aral Sea Basin Program
ASBP-3	Third Aral Sea Basin Program
BRI	Belt and Road Initiative
BT	Barki Tojik
CA	Central Asia
CAEWDP	Central Asia Energy-Water Development Program
CAHMP	Central Asia Hydrometeorology Modernization Project
CAMP4ASB	Climate Adaptation and Mitigation Program for the Aral Sea Basin
CAPS	Central Asia Power System
CAREC	Central Asia Regional Economic Cooperation
CAREC^{env}	Regional Environmental Center for Central Asia
CASA-1000	Electricity Transmission and Trade Project for Central Asia and South Asia
CAsKADe	Central Asia Knowledge Alliance for Development
CAWaRM	Central Asia Water Resources Management
CAYFWater	Central Asia Youth Forum on Water
CoP	Community of Practice
CSOs	Civil Society Organizations
C4D	Collaboration for Development
DAC	Donor Advisory Committee
DSS	Decision Support System
DFID	United Kingdom Department for International Development
DH	District Heating
EAP	Energy Action Plan
EEU	Eurasian Economic Union
EC	European Commission
EC-IFAS	Executive Committee of the International Fund for Saving the Aral Sea
EPC	Engineer Procurement ContracT
ESCC	Energy Sector Coordinating Committee
ESIA	Environmental and Social Impact Assessment
EU	European Union
EWP	Energy Work Plan
GDP	Gross Domestic Product

GEF	Global Environment Facility
GFDRR	Global Facility for Disaster Reduction and Recovery
GKU	German-Kazakh University
GoK	Government of Kazakhstan
GoT	Government of Tajikistan
HPP	Hydropower Plant
HVDC	High-voltage Direct Current
ICWC	Interstate Commission on Water Coordination
IDA	International Development Association
IWRM	Integrated Water Resources Management
JWG	Joint Working Group
MEWR	Ministry of Energy and Water Resources
M&E	Monitoring and Evaluation
MDTF	Multi-Donor Trust Fund
NEGK	National Electrical Grid of Kyrgyz Republic
OSHC	Open Stock Holding Company
PIU	Project Implementation Unit
RETF	Recipient Executed Trust Fund
SCO	Shanghai Cooperation Organization
SDG	Sustainable Development Goals
SECO	State Secretariat for Economic Affairs (Switzerland)
SOP	Series of Projects
TA	Technical Assistance
TAPI	Turkmenistan–Afghanistan–Pakistan–India (Pipeline)
TF	Trust Fund
ToR	Terms of Reference
TTL	Task Team Leader
TWG	Technical Working Group
UNEP	United Nations Environment Programme
UNRCCA	United Nations Regional Centre for Preventive Diplomacy
USAID	United States Agency for International Development
WB	World Bank
WIS	Water Information System
WSS	Water Supply and Sanitation

EXECUTIVE SUMMARY



This report presents the highlights and progress of the Central Asia Energy-Water Development Program (CAEWDP). The reporting period for this Annual Report is the calendar year from January to December 2017. The report also covers the completion of CAEWDP 2.0 and the preparation for CAEWDP 3.0, which started in January 2018.

ABOUT THE PROGRAM

The Central Asia Energy-Water Development Program was initiated in 2009 with the goal to support the Central Asia countries (Kazakhstan, the Kyrgyz Republic, Tajikistan, Turkmenistan and Uzbekistan) to promote energy and water security through regional cooperation. The long-term vision of the Program is to catalyze economic growth and livelihood security within Central Asia through regional cooperation and integrated energy and water development initiatives. CAEWDP is designed as a catalytic program that aims at precipitating policy change, institutional effectiveness, investments and increased coordination among beneficiary through targeted Bank and recipient executed grants.

CAEWDP is implemented by the World Bank through a multi-donor trust fund financed by the State Secretariat for Economic Affairs of Switzerland (SECO), the Department for International Development of the United Kingdom (DFID), the United States Agency for International Development (USAID) and the European Commission (EC).

CAEWDP is structured around three pillars: Energy Development, Water Productivity, and Energy-Water Linkages, to reflect the Program's goal. The objective of the Energy Development Pillar is to promote and analyze high-value energy investments that focus on energy security, efficiency, trade and accountability, infrastructure planning and institutional development. The Water Productivity Pillar aims to enhance the productive and efficient use of shared water resources in the various water related sectors through capacity building, institutional strengthening and investment planning. The Energy-Water Linkages Pillar aims to improve the understanding of linkages between energy and water at national and regional levels and to explore the future impact of regional climate change.

through activities that fall under three cross-cutting components: Analytical Development, Institutional Strengthening, and Investment Preparation.
The Analytical Development component aims at strengthening the enabling environment through the generation of knowledge. The Institutional Strengthening component enables capacity building by promoting dialogue processes and investments, networking, and knowledge sharing. The Investment Preparation component aids governments in the preparation of investment related documents and studies. Together these three components help increase regional cooperation to advance sustainable development and build climate resilience, goals that are inherent to energy and water security.

PROGRAM ACHIEVEMENTS TO DATE

Between 2009 and 2017 CAEWDP completed two Program phases: CAEWDP 1.0 from 2009 to 2011 and CAEWDP 2.0 from 2011 to its completion in 2017. CAEWDP 2.0 engaged in thirty-eight activities, fifteen of which focused on Energy Development, seven on Water Productivity, and sixteen on Energy-Water Linkages. The activities that CAEWDP undertook in Central Asia contributed to investment projects in the amount of around US$ 1.7 billion.[1] From 2011 to 2017, CAEWDP catalyzed six investment projects: 1) Nurek Hydropower Rehabilitation Project Phase I (US$ 350 million), 2) Climate Adaptation and Mitigation Program for the Aral Sea Basin (CAMP4ASB) (US$ 45 million, plus additional financing of US$ 19 million in pipeline), 3) Central Asia-South Asia Electricity Transmission and Trade Project (CASA-1000) (US$ 1.17 billion), 4) CASA-1000 Community Support Project for the Kyrgyz Republic (US$ 11 million), 5) Heat Supply Improvement Project in the Kyrgyz Republic (US$ 46 million), and 6) Central Asia Hydrometeorology Modernization Project (CAHMP) (US$ 28 million, plus additional financing of US$ 11.5 million in pipeline). The Program will continue its operation with a third Program phase, CAEWDP 3.0, which starts in January 2018.

1. Total project costs are reported based on Project Appraisal Documents (PADs). PADs are available at www.documents.worldbank.org

HIGHLIGHTS OF CAEWDP SUPPORTED ACTIVITIES IN 2017

In 2017, with the completion of CAEWDP 2.0 in December, the Program finalized 13 activities: seven under Energy Development, one under Water Productivity, and five under Energy-Water Linkages.

One of the long-term goals of CAEWDP is to support activities that contribute to eliminating winter energy shortages in Central Asia. In 2017, the Program completed three activities that reduce energy shortages and improve heating sector efficiency in the Kyrgyz Republic and Tajikistan. The Program's Kyrgyz Republic: Heating Efficiency Improvement activity conducted groundwork to prepare the Heat Supply Improvement Project, which addresses the challenge of providing reliable and affordable heating supply to the people of the Kyrgyz Republic in urban and rural settings. In October of 2017, the World Bank's Board of Executive Directors approved the Project.[2] Similar work was conducted in Tajikistan, where the Tajikistan Winter Energy Program focused on supporting pre-investment studies to enhance winter energy security in Tajikistan. As a result, the Nurek Hydropower Rehabilitation Project Phase I investment project was approved in May, 2017. CAEWDP assisted with investment preparation through Advisory Support for the Phase I of Nurek Hydropower Rehabilitation Project Recipient Executed Trust Fund (RETF). Additionally, in Tajikistan, the Program completed the Energy Vulnerability to Climate Change activity, which provided the most current climate change projections for Tajikistan, information on climate change impact on the energy sector, and adaptation measures for the country.

At the regional scale, CAEWDP facilitated dialogue and strengthened institutions on energy trade within and outside of Central Asia. In 2017, in the context of the Central Asia Regional Economic Cooperation (CAREC) platform, the Program facilitated dialogue on building a more coordinated and integrated regional energy market. The Program facilitates inter-regional energy trade by providing technical assistance and project implementation support to the CASA-1000 Project. In 2017, CAEWDP facilitated implementation of the country-specific Environmental and Social Impact Assessments (ESIAs) for the Kyrgyz Republic and for Tajikistan.

CAEWDP conducted an analysis of Water Supply and Sewerage (WSS) Services in Central Asia. The activity examined the WSS sectors, determined the problem areas, and proposed policy reforms towards improved access, quality, efficiency, and sustainability of WSS services. These findings improved fact-based dialogue with client countries for sector reform and informed decision-making in the WSS sector.

The Program contributed to regional institutions by connecting different groups of experts and youth, and by linking energy and water sectors via virtual and face-to-face networking events. Before 2017, the Central Asia Knowledge Network activity established new and enhanced existing Communities of Practice (CoPs). In 2017, this activity established a new Central Asia Youth Forum on Water (*CAYFWater*) CoP in collaboration with the German-Kazakh University (GKU) to provide a greater voice to young people. The first meeting of CAYFWater members took place in 2017 in the Kyrgyz Republic.

Furthermore, the Program strengthened regional institutions by providing technical assistance and creating learning opportunities. In 2017, the Technical Assistance for Developing Water Information Systems in Central Asia provided analytical foundations for the Central Asia Water Resources Management Program (CAWaRM).[3] Additionally, the program facilitated the Tajikistan Water Information System Study Tour activity for Tajik water experts. Two study tours, to Armenia and the USA, introduced the Tajik experts to the Water Information Systems (WISs) and Decision Support Systems (DSSs) used in water management sectors abroad. This activity provided timely knowledge to Tajikistan, as the country is reorganizing its energy and water sectors and rolling out the establishment of a national WIS, based on the findings and recommendations of an earlier CAEWDP financed assessment.

2. World Bank Press Release October 27, 2017 http://www.worldbank.org/en/news/press-release/2017/10/27/world-bank-to-help-kyrgyz-republic-improve-efficiency-and-quality-of-heat-supply

3. This program was restructured, after the World Bank (WB) took the decision in early 2017 to pursue water information system (WIS) development support at national level rather than to push for a regional program. CAEWDP engagement on this agenda will continue under the third funding phase.

PROGRAM ADMINISTRATION AND DISBURSEMENTS

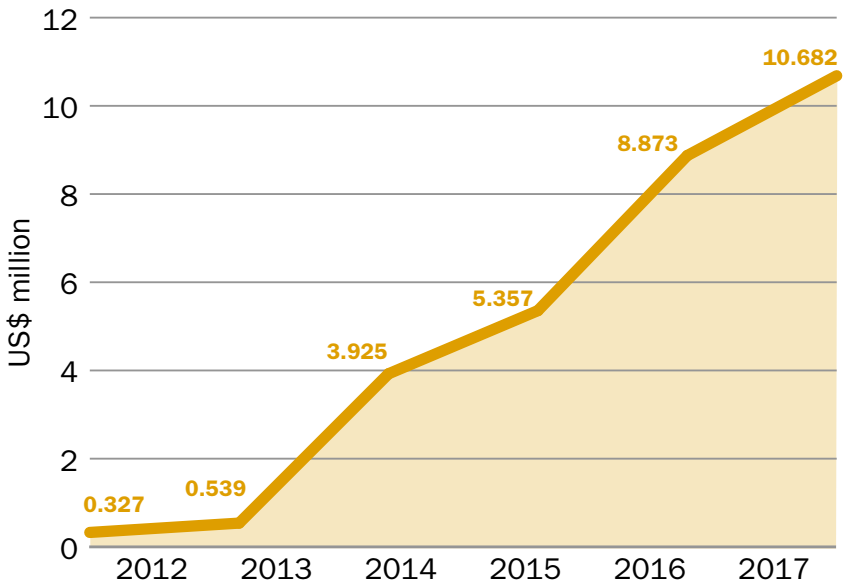
This year, the CAEWDP core team supported the closure of the remaining Phase 2.0 grants, while setting up the next phase of the Program. Additionally, the team developed Monitoring and Evaluation (M&E) and Communication and Outreach strategies. A new Multi-donor Trust Fund (MDTF) was established in November for implementation of CAEWDP 3.0 starting in January 2018. A cumulative total of US$ 10.7 million was disbursed through CAEWDP activities by the end of 2017 (Figure 1). During the Program lifetime, the Energy-Water Linkages Pillar accounted for about 44 percent of program activity financing, while the Energy Development Pillar accounted for 34 percent. The remaining funding was for the Water Productivity Pillar (7 percent) and strategic program management (15 percent), which included dissemination and outreach activities, as well as the preparation of the Program's next funding phase (Figure 2).

LOOKING FORWARD

CAEWDP will continue to provide support at the national and regional levels with the program development objective to strengthen the enabling environment to promote energy and water security at regional level and in the beneficiary countries. Moving forward, the CAEWDP 3.0 pillar structure and content will be adjusted with an increased focus on facilitating energy and water security. Some of the guiding principles for Phase 3.0 include:

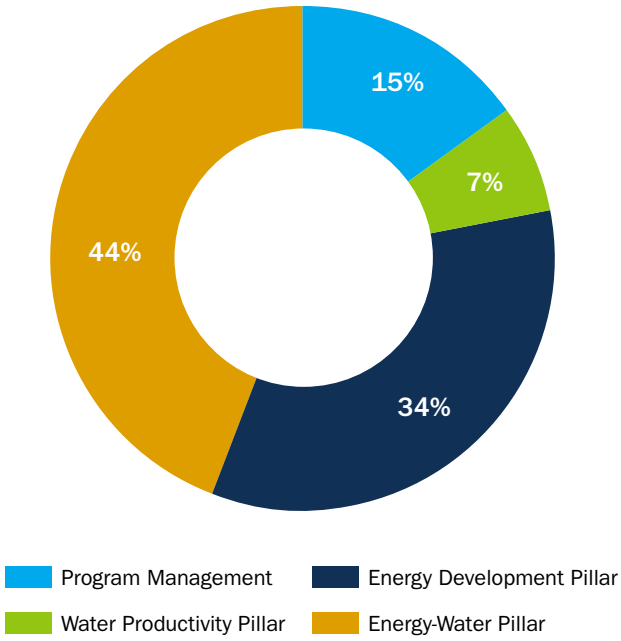
- Treating national activities as building blocks to achieve energy and water security at the regional level
- Increasing emphasis on capacity building for, and within, institutions and on dialogue to catalyze investments
- Including Afghanistan as a new Program beneficiary country in addition to the five Central Asian Republics.

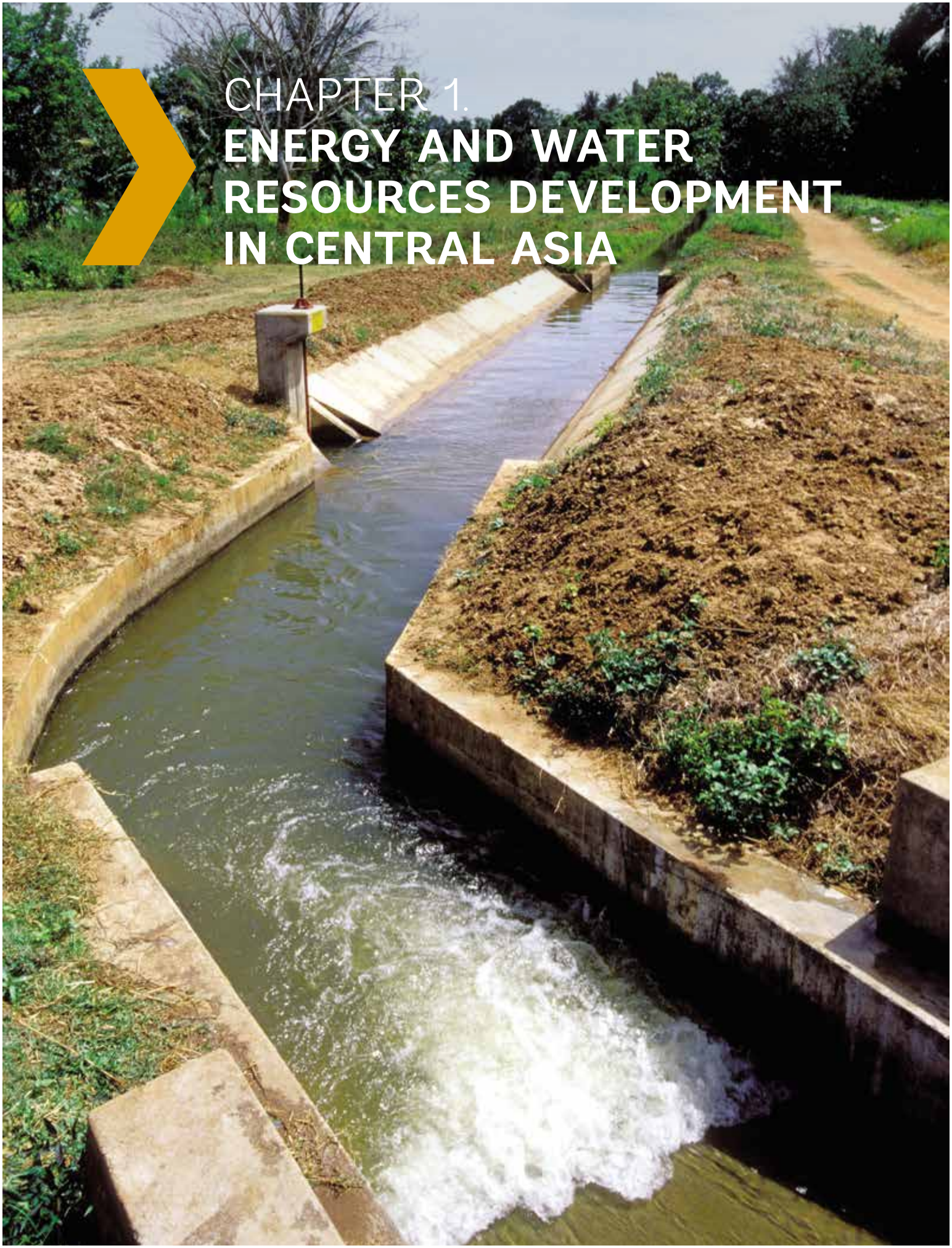
FIGURE 1 — CUMULATIVE PHASE 2.0 PROGRAM DISBURSEMENTS (US$ MILLIONS, 2012-2017)



Efforts are underway to establish and shape CAEWDP 3.0. Strong support exists among the beneficiary countries and development partners for the continuation of the CAEWDP's integrative and adaptive approach. The concept for the third funding phase was presented to the Donor Advisory Committee (DAC) for consultation in December 2016. In 2017, the documents for CAEWDP 3.0 inception were reviewed according to the DAC feedback and approved in July. CAEWDP 3.0 is operational since January 2018.

FIGURE 2 — PROPORTION OF TOTAL PROGRAM ALLOCATION PER PILLAR IN 2017 (%)





CHAPTER 1.
ENERGY AND WATER RESOURCES DEVELOPMENT IN CENTRAL ASIA

1.1 REGIONAL AND COUNTRY CONTEXT

When the Soviet Union dissolved in 1991, the five Central Asian republics gained their independence. Almost as soon as the countries started building their nations, they joined the World Bank (WB): Kazakhstan joined first in June of 1992 followed quickly by the others with Tajikistan joining last in June of 1993. Throughout its engagement, the WB has supported the Central Asian countries' efforts to improve peoples' living standards and promote economic growth. Among other projects, the WB and the United Nations Environment Programme (UNEP) supported the efforts of the International Fund for Saving the Aral Sea (IFAS) by assisting in the preparation of the first Aral Sea Basin Program (ASBP)—an action program to stabilize and restore the zone around the Sea, improve transboundary water management, and develop the capacity of regional organizations. As the first ASBP proved to be beneficial, the WB continued its engagement with IFAS by participating in the preparation of and supporting follow-up for ASBP-2 (2003-2010) and ASBP-3 (2011-2015). Starting in 2009, the WB partnered with the Central Asian governments and development organizations (including the Government of Switzerland's State Secretariat for Economic Affairs (SECO), the United Kingdom's Department for International Development (DFID), the European Union (EU), and the United States Agency for International Development (USAID)) to promote energy and water security in Central Asia in the context of a changing global environment through the Central Asia Energy-Water Development Program (CAEWDP).

Although the Central Asian countries collaborated within IFAS, their partnerships on water management, energy trade through the Central Asia Power System (CAPS), and other sectors weakened over time. One reason for this split is rooted in the national development strategies, which were tied to the nations' geographic locations and natural resources availability. The basin's downstream nations of Kazakhstan, Turkmenistan, and Uzbekistan are rich in hydrocarbons, ensuring their energy security; the Kyrgyz Republic and Tajikistan lack these energy resources, but do have significant hydropower potential. Thus, these fossil energy poor upstream countries are keen to further develop their hydropower resources—an enterprise that could turn these countries into major electricity exporters. However, the development of hydropower projects upstream has been regarded by the downstream countries as having the potential to negatively impact their economies. The issue and the reason for regional tension is rooted in the timing of the flow of the shared waters; the downstream countries utilize water for spring and summer irrigation while upstream countries desire to release water in winter for power production. If the upstream states were to release water based on their own needs, there would be insufficient releases for the downstream crops during the growing season. Over time, these differences in development paths led to inadequate transboundary water management and to the weakening of the CAPS—a major loss for the region, as this system largely met the needs of its consumers and reduced the overall energy costs.

In recent years, however, the regional integration processes have intensified. In 2017, the ongoing political transition in Uzbekistan resulted in solving some border demarcation issues, reopening of checkpoints, establishment of new international flight routes, increasing regional trade, reconnecting power lines, and expressing the potential interest in collaborating on large hydropower plant (HPP) construction. The new chair of the of Executive Committee of International Fund for Saving the Aral Sea (EC IFAS)—Turkmenistan—has demonstrated interest in reviving the regional dialogue on integrated water and energy management. The country hosted the Central Asian International Environmental Forum in June of 2017 and proposed development of the fourth Aral Sea Basin Action Program (ASBP-4). On a larger scale, trends to increase regional security and economic integration through regional organizations such as the Shanghai Cooperation Organization (SCO), Eurasian Economic Union (EEU), and Central Asia Regional Economic Cooperation (CAREC) and via regional initiatives such as China's Belt and Road Initiative (BRI) are evident as well.

1.2 ENERGY AND WATER CHALLENGES IN 2017

Developments in 2017 show that the Central Asian countries are working towards regional integration in the water and energy sectors. While upstream Kyrgyz Republic and Tajikistan continued to express their intent in building large HPPs, Uzbekistan expressed its willingness to negotiate the development projects within internationally accepted rules; it also signed a Memorandum of Understanding with the Kyrgyz Republic on cooperation in the implementation of the Kambarata HPP-1 construction project. During the 25th anniversary of the Interstate Commission for Water Coordination (ICWC) — the first regional institution set up in Central Asia after the dissolution of the Soviet Union, tasked to control efficient use and protection of the waters, develop regional common water management policies, and determine annual limits of water use for each state—the countries adopted a resolution that underlined the significance of intensifying the work to improve legal and institutional mechanisms for interstate water cooperation.[4]

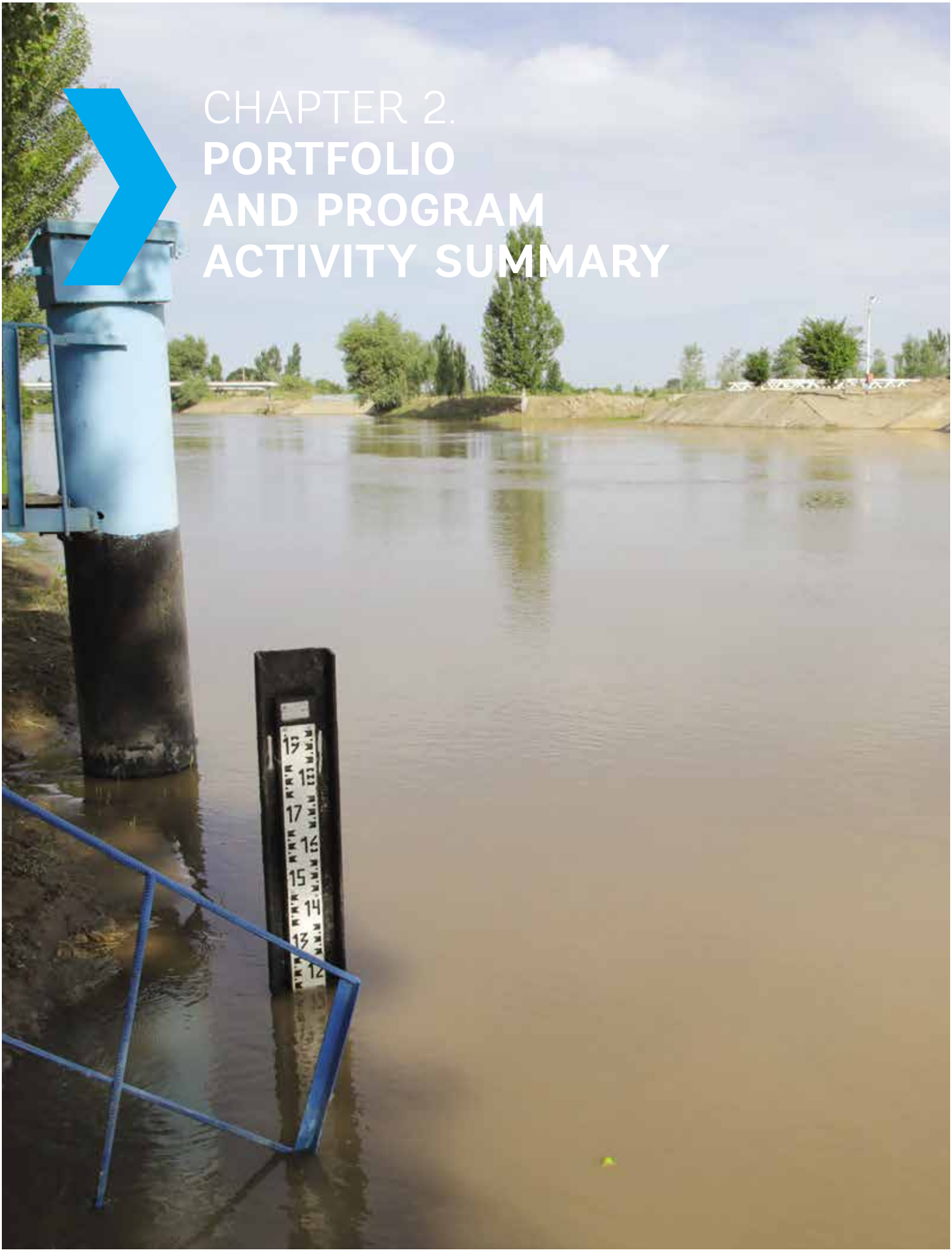
Regional power trade negotiations and deals intensified in 2017. The Kyrgyz Republic began delivering electricity to Uzbekistan in June after signing an agreement on power trade. Transmission lines are being built and restored to re-connect Tajikistan's and Uzbekistan's grids,[5] enabling Tajikistan to supply surplus electricity to Uzbekistan in 2018. In May, Uzbekistan and Turkmenistan signed a memorandum envisioning the transmission of electricity from Turkmenistan to Kazakhstan and the Kyrgyz Republic through Uzbekistan's power grid. Additionally, Uzbekistan is making efforts to restore a single energy ring with all its Central Asian neighbors: the Kyrgyz Republic, Kazakhstan, Tajikistan, and Turkmenistan, with a possible extension to Afghanistan. In addition to strengthening power trade within the region, CAEWDP 3.0 will continue to support country efforts to re-establish full regional interconnectivity to support inter-regional power trade.

Central Asian countries continue to look for power trade opportunities outside the region. For example, Turkmenistan expressed its interest to supply energy by transit via Afghanistan to Tajikistan in autumn and winter. Kazakhstan is looking to Azerbaijan as a new export outlet for its increasing natural gas production and as an alternative to already existing routes. Uzbekistan is considering participating in the Turkmenistan–Afghanistan–Pakistan–India Pipeline (TAPI) project. This past year, countries participating in the CASA-1000 project, which will allow the export of surplus hydroelectricity from Tajikistan and the Kyrgyz Republic to Pakistan and Afghanistan, have made significant progress in the project infrastructure procurement, including signing construction contracts for power transmission lines in Afghanistan. Progress in the CASA-1000 project has increased market interests in future third party access to this investment.

Climate change pressure is increasing in Central Asian countries. The 2014 WB research on climate change showed that increasing precipitation and glacial melt will lead to increased water availability and flood risk in Central Asia in the coming decades. Tajikistan, the Central Asian country most vulnerable to considerable climate change risks—prone to floods, mudslides, and earthquakes—faced heavy rains and strong winds which resulted in a mudflow in June of 2017. About 700 people were affected, losing their livelihoods, livestock, properties, and critical social infrastructure. In July, WB approved US$ 50 million for the Strengthening Critical Infrastructure Against Natural Hazards Project in Tajikistan.

4. Resolution Central Asian International Scientific-Practical Conference "The 25 Years of Water Cooperation in Central Asia: Lessons Learnt and Future Outlook"

5. Tajikistan became fully isolated from Uzbekistan and the Central Asia Power System (CAPS) in 2009.



CHAPTER 2.
PORTFOLIO AND PROGRAM ACTIVITY SUMMARY

2.1 CAEWDP GOALS AND APPROACH

CAEWDP is a knowledge and technical assistance multi-donor trust fund (MDTF) administered by the World Bank. It is designed as a catalytic program that aims at precipitating policy change, institutional effectiveness, investments and increased coordination through targeted Bank and recipient executed grants. (For examples see section 2.2 below)

CAEWDP's goal is to promote energy and water security for the countries of Central Asia—Afghanistan, Kazakhstan, Kyrgyz Republic, Tajikistan, Turkmenistan, and Uzbekistan—through enhanced regional cooperation. Since its inception in 2009, CAEWDP has received US$ 12 million in support from bilateral and multilateral donors including the Government of Switzerland through the State Secretariat for Economic Affairs (SECO), the European Commission (EC), the United Kingdom's Department for International Development (DFID), the United States Agency for International Development (USAID), and the World Bank Group.

The Program is created on the basis of partnerships with governments, thus the Program activities reflect national aspirations and priorities. CAEWDP also partners with regional organizations whose mandates are to convene discussions on regional issues, such as the International Fund for Saving the Aral Sea (IFAS), Central Asia Regional Economic Cooperation (CAREC), United Nations Regional Centre for Preventive Diplomacy (UNRCCA), and Regional Environmental Centre for Central Asia (CAREC^{env}). Coordination with other development partners assists CAEWDP to meet program goals, align development and engagement approaches (e.g. through linkages to the Blue Peace Program, Berlin Process, and the South Asia Regional Trade and Integration Program/SARTIP), cooperate on program activities (e.g. with the EU-Central Asia Enhanced Regional Cooperation on Environment, Climate Change and Water/WECOOP project), and catalyze new investments and projects (e.g. Smart Waters) (Figure 3).

Collaboration with other development partners and regional institutions forged new partnerships and facilitated new projects. The Kazakh-German University plays central role in development of the regional Academic Network established by CAEWDP. It was established as part of the Berlin Process, which was launched in 2008 as an offer by Germany to the countries of Central Asia to support them in water management and transboundary cooperation. The Swiss Blue Peace Initiative, launched in 2014, includes an educational track, which contributes to training the next generation of water professionals. The Initiative supports the Central Asia Youth Forum on Water Network established by CAEWDP. In 2014 and 2015, both networks participated in the research project competition among Masters students organized under CAEWDP's Central Asia Knowledge Network (CAKN) activity. The contest was not only very popular, it also led to the US$ 9.5 million USAID funded Smart Waters project. These

FIGURE 3 — CAEWDP LINKAGES WITH OTHER PROGRAMS AND INSTITUTIONS

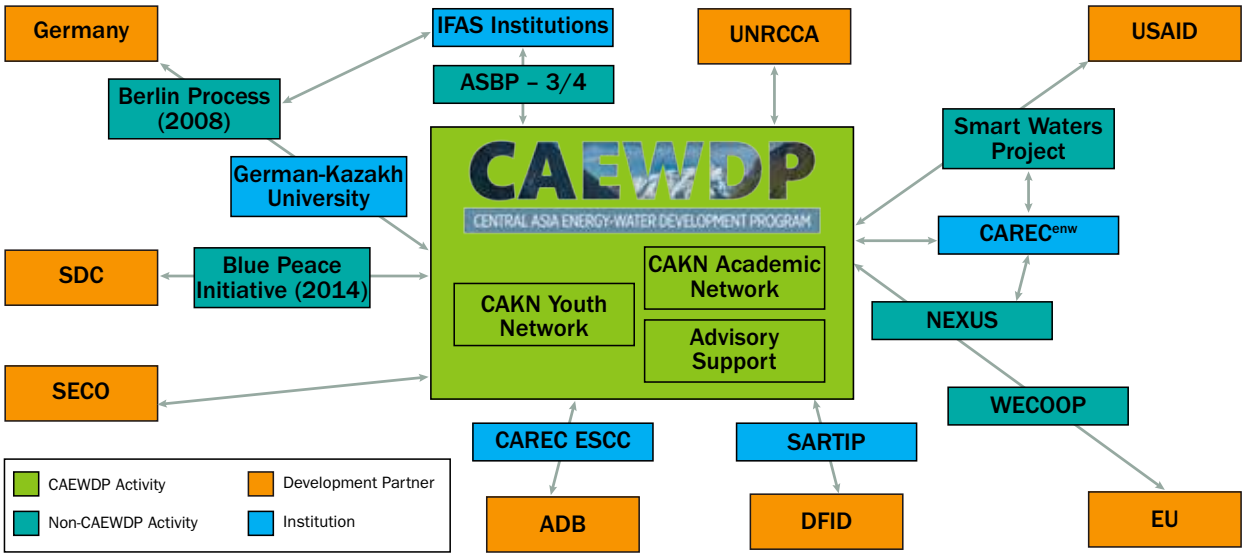
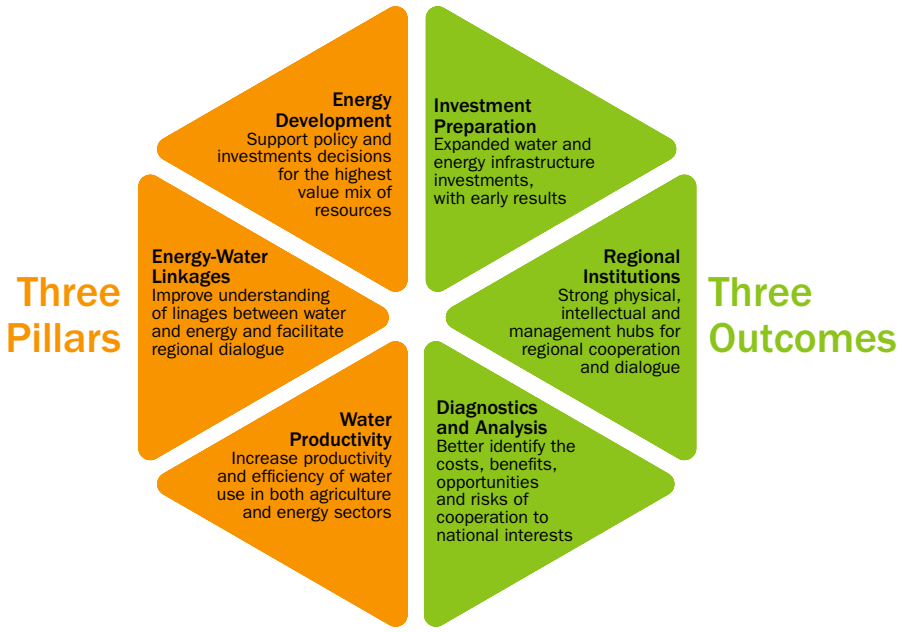


FIGURE 4 — CAEWDP 2.0 PILLAR AND OUTCOMES STRUCTURE



contests, which involve CAKN's Academic and Youth networks, are now regularly organized by CAREC[env] and the Kazakh German University.

CAEWDP's role in strengthening regional cooperation and leveraging the energy-water nexus is significant, given the geographic and institutional complexities of Central Asia's energy and water linkages. The Program's long-term goals are to reduce winter energy shortages, enhance water productivity, and increase electricity trade within and outside the region. Hence, CAEWDP 2.0 is structured around three pillars to reflect these goals (Figure 4):

1. Energy Development: This pillar supports policy and investment decisions for the highest value mix of energy resources at the regional levels — both within Central Asia and at the broader regional level. It promotes and studies high-value energy investments that focus on energy security, energy efficiency, trade and accountability, infrastructure planning and institutional development. Additional activities also promote better coordination among the development partners working in this region.

2. Energy-Water Linkages: This pillar seeks to improve the understanding of the interconnections between energy and water at the national and regional levels by: exploring the future impact of climate change, facilitating regional dialogue regarding cooperative management of water and energy, and strengthening the information base.

3. Water Productivity: This pillar addresses infrastructure and management opportunities to increase the productivity and efficiency of water use in both agriculture and energy sectors.

Each of the program pillars aims to engage in activities based on three key outcomes:

- Analytical Development (Technical Assistance), or the upgrade of the knowledge foundation and establishment of sound energy-water diagnostics and analytical tools
- Institutional Strengthening, or the shaping of strategies and strengthening of national and regional institutions and dialogue
- Investment Preparation, or the identification of priority infrastructure investments.

All three outcomes are closely intertwined. Analytical development provides the technical foundations and "know-how"; institutional strengthening builds the capacity of agents, whereas investment preparation helps to identify investment options. The combination of these three outcomes provides a comprehensive pathway to promote regional cooperation.

TABLE 1 — CAEWDP ACTIVITIES DURING PHASE 2.0.

	Analytical Development	Institutional Strengthening	Investment Preparation	Total
Energy Development	6	3	6	15
Water Productivity	6	0	1	7
Energy-Water Linkages	5	6	5	16
Total	17	9	12	38

2.2 CAEWDP 2.0 COMPLETION

The second phase of CAEWDP (CAEWDP 2.0) closed on 31 December 2017. From 2011 to 2017 CAEWDP 2.0 contributed to the strengthening of the region's institutions by increasing human and institutional capacity, improving regional coordination over energy and water issues, and helping the countries in the region prioritize their energy and water sector development pathways. The Program's success has been recognized, and in 2017, CAEWDP prepared for its third funding phase launched in January 2018.

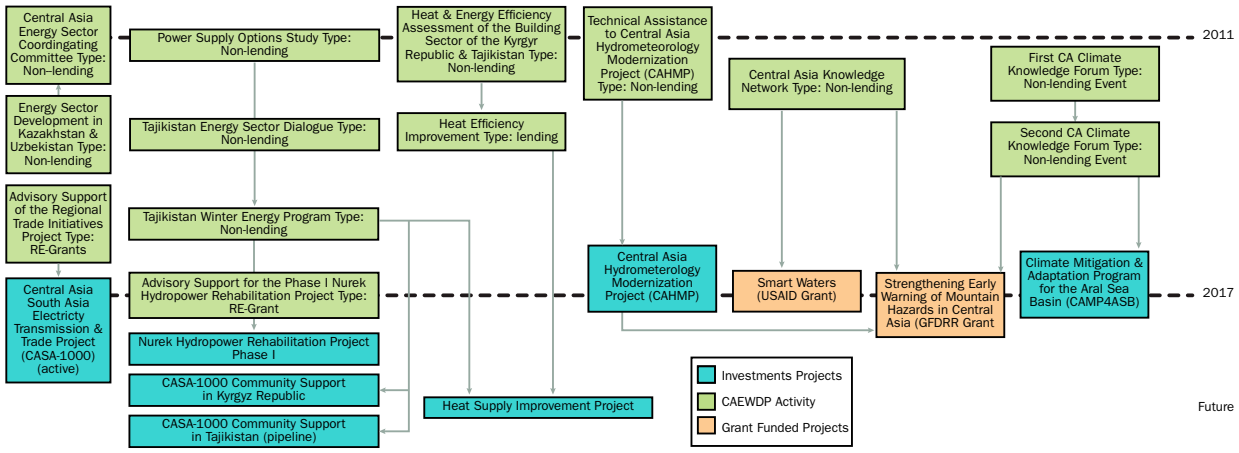
Since the inception of CAEWDP 2.0 in 2011, the Program has engaged in thirty-eight activities (Table 1), fifteen of which focused on energy development, seven on water productivity, and sixteen on energy-water linkages. Thirty-seven out of thirty-eight activities were completed. One activity, the Uzbekistan Water Resources Assessment, was dropped, as it became clear that it could not be completed within CAEWDP 2.0 duration.

CAEWDP uses targeted small to medium size grants (US$ 60,000 – 700,000) to catalyze changes in policy or institutional effectiveness and/or to bring about larger investments. For example, CAEWDP funded participation of Bank and external energy experts in the CAREC Energy Sector Coordination Committee (ESCC) facilitated inclusion of water-energy nexus considerations in the ESCC agenda. The CAREC Engagement Project convened Eurasia energy experts to commence a dialogue on energy issues in Central Asia. As a result, the issue of energy-water linkages was recognized by the ESCC and became one of the three main components of the CAREC ESCC's Energy Action Plan (EAP) and Energy Work Plans (EWPs).[6] The six-country riparian consultations to review the Rogun HPP assessment studies provided a platform for open discussions and transparency on the study findings. This arguably established an enabling, shared knowledge base for the ongoing dialogue among concerned countries.

The activities that CAEWDP undertook in Central Asia leveraged US$ 1.7 billion[7] in investment projects and other grant funded projects. Some of the investment projects catalyzed by CAEWDP during 2011 to 2017 period include: 1) Nurek Hydropower Rehabilitation Project Phase I (US$ 350 million), 2) Climate Adaptation and Mitigation Program for Aral Sea Basin (US$ 45 million), 3) Central Asia-South Asia (CASA) 1000 Project (US$ 1.17 billion), 4) CASA-1000 Community Support Project (the Kyrgyz Republic) (US$ 11 million), 5) Heat Supply Improvement Project (the Kyrgyz Republic) (US$ 46 million), and 6) Central Asia Hydrometeorology Modernization Project (CAHMP) (US$ 28 million). Additionally, CAEWDP activities initiated projects funded by other development partners and trust-funded programs. For example, the Global Facility for Disaster Reduction and Recovery (GFDRR) provided US$ 1.2 million grant for Strengthening Early Warning of Mountain Hazards in Central Asia.[8] USAID funded CAREC^{env} project on "Smart Waters" for US$ 9.5 million. Figure 5 illustrates examples of how individual CAEWDP activities contributed to new investments and grant funded projects.

6. Read more here: https://www.carecprogram.org/?publication=energy-action-plan-framework-2010-2012-completion-report and https://www.carecprogram.org/?publication=carec-2020-strategic-framework-for-central-asia-regional-economic-cooperation-program-2011-2020
7. Total project costs are reported based on Project Appraisal Documents (PADs). PADs are available at www.documents.worldbank.org
8. Read more: https://www.gfdrr.org/en/strengthening-early-warning-mountain-hazards-central-asia-bank-executed

FIGURE 5 — FROM CAEWDP TO INVESTMENTS AND GRANT-FUNDED PROJECTS



2.3 ACTIVITIES SUMMARY 2017

CAEWDP contributes to the World Bank's portfolio in Water, Energy, and the ECA region through direct contributions to advisory services and analytical activities. Over the course of the 2017 calendar year, the Program completed thirteen activities (Table 2). Of these activities, one was new, while twelve were continuing from the previous years.

In 2017, the Energy Development pillar constituted the majority of ongoing activities. Out of seven activities under this pillar, one fell under Institutional Strengthening and six under the Investment Preparation outcome. The Water Productivity pillar had one ongoing activity under Analytical Development. The Energy-Water Linkages pillar completed five activities: two under Institutional Strengthening and three under Investment Preparation.

A summary of the 2017 portfolio of program activities is provided in the next section for each of the three pillars. In addition to the summary, the next section also presents contributions of the Program's activities to the broader CAEWDP goals of promoting regional energy and water security and regional cooperation. More comprehensive activity descriptions and updates are included in Annex 1.

TABLE 2 — CAEWDP ACTIVITIES DURING 2017.

	Analytical Development	Institutional Strengthening	Investment Preparation	Total
Energy Development	0	1	6	7
Water Productivity	1	0	0	1
Energy-Water Linkages	0	2	3	5
Total	1	3	9	13

Energy Development Pillar

Many of the current energy challenges are the result of the collapse of the region's water and power coordination policies, that were implemented during the Soviet era, and the adherence to different development strategies subsequently pursued by the newly independent five Central Asian republics. The current generation capacities of the Kyrgyz Republic and Tajikistan are linked to the agreed regime of summer water releases to downstream irrigation. The winter energy shortages are estimated around 25 percent,[9] yet the summer power capacity surplus (driven by the releases for irrigation) is left unused with high levels of spillage at hydroelectric plants. With aging infrastructure, weak institutional capacity and low productivity arising from subsidy policies and suboptimal tariff structures, these hydropower facilities and the national electricity sectors are inefficient and do not reach their full economic potential. Reforms are needed to increase institutional capacity for better planning, management, and energy use efficiency.

CAEWDP's Energy Development pillar aimed to analyze and support high-value investments focused on winter energy security, energy efficiency, enhancing trade and accountability, infrastructure planning and institutional development. The 2017 program activities reflected those objectives. Below is the list of seven[10] activities completed under this pillar during 2017 calendar year.

Energy Vulnerability to Climate Change (Investment Preparation) activity was competed in 2017. The objective of this activity was to help the Government of Tajikistan understand energy sector vulnerabilities to climate change and build resilience through the development of coordinated adaptation policies with other Central Asian countries. The activity produced a "Tajikistan country-level assessment of energy sector vulnerability to climate change and measures to build resilience" report, which provides the most current climate change projections for Tajikistan, information on climate change impact on the energy sector, and adaptation measures for the country.

Central Asia Regional Economic Program (CAREC Engagement) Phase II (Institutional Strengthening) activity focused on enhancing energy sector dialogue among the Central Asian states and ensuring coordination of donor assistance through funding CAEWDP's participation in CAREC ESCC meetings.

The recent change in regional energy cooperation, such as Uzbekistan's plans to improve ties with neighboring countries has sparked hope for a new era of regional cooperation between Central Asian countries. Using this momentum, during the 2017 CAREC ESCC meetings in Tajikistan, Kazakhstan, and Turkmenistan, the CAEWDP team presented the audience with specific measures that could gradually move the countries from the current status of electricity markets to a more coordinated and integrated regional market. Presentations made by the WB energy team as part of CAEWDP CAREC ESCC funded activity demonstrated how harmonization would allow more efficient electricity trade and utilization of regional energy resources. In these meetings, the WB team presented a concept of a three-stage transition path that could be considered by the stakeholders in the future for the development of regional energy markets in Central Asia including:

1. Establishing inter-governmental agreement on the development of a Central Asian energy cooperation agenda to express commitment to regional energy cooperation and to create an intergovernmental framework for regional energy cooperation.

2. Stage 1: Expanding opportunities for regional trade by identifying priority infrastructure projects to increase cross-border interconnection, increasing bilateral and regional electricity trades, synchronizing transmission networks, and identifying the responsibilities of a regional transmission company for regional network coordination and monitoring.

3. Stage 2: Developing a regional electricity market design and functions including the regulatory structure and framework for transmission access and pricing, the regional grid code and regional market rules, and the regional regulatory entity with regional market oversight responsibilities and representation from participating Central Asian countries.

9. Fields, Daryl; Kochnakyan, Artur; Mukhamedova, Takhmina; Stuggins, Gary; Besant-Jones, John. 2013. Tajikistan's Winter Energy Crisis : Electricity Supply and Demand Alternatives. World Bank Study. Washington, DC: World Bank.

10. Advisory Support for the Regional Trade Initiatives Project for the Kyrgyz Republic and Advisory Support for the Regional Trade Initiatives Project for Tajikistan are reported as a single activity.

The CAEWDP team plans to continue its engagement with CAREC ESCC under CAEWDP 3.0. The team plans to promote regional energy trade by recommending a conceptual vision for regulatory and technical harmonization of the Central Asian transmission grid, providing institutional capacity building support and by developing the regional electricity market.

CASA-1000 Advisory Support for the Regional Trade Initiatives Recipient Executed Trust Funds (RETFs): The Kyrgyz Republic and Tajikistan (Investment Preparation) recipient-executed activities formed part of the US$ 1.17 billion World Bank CASA-1000 investment project. The role of these activities was to facilitate the initial preparatory work for the project, which aims to facilitate 1,300 megawatts in electricity trade between Central Asia (the Kyrgyz Republic and Tajikistan) and South Asia (Afghanistan and Pakistan). During 2017, the CAEWDP RETFs for the Kyrgyz Republic and Tajikistan supported preparation of Environmental and Social Impact Assessments (ESIAs) in both countries.

Tajikistan Winter Energy Program (Investment Preparation) focused on supporting pre-investment studies to enhance winter energy security in Tajikistan. The activity focused on two areas: the efficiency of heating stoves and other heating solutions, with a focus on rural areas and the rehabilitation of the Nurek Hydro Power Plant (HPP).

In 2017, a pilot program aimed at testing newly developed efficient heating stoves prototypes in selected areas of the Republic of Tajikistan took place. The results of the pilot program were presented to the Government of Tajikistan (GoT), development partners, and stakeholders in Spring of 2017. The team also conducted a workshop to disseminate the generated knowledge and share the Efficient Stoves and Heating Options Strategy Report.

The CAEWDP team assisted the GoT in preparation of the Nurek HPP rehabilitation investment project by aiding in the preparation of the feasibility reports, preparing bidding documents, and formulating contracts for consultants who prepared the rehabilitation design. The studies and reports produced by the activity helped with the assembly of the investment project package for the WB Board, which approved the project in May of 2017.

Advisory Support for the Phase I of Nurek Hydropower Rehabilitation Project (RETF) (Investment Preparation) activity provided critical advisory support to the Open Stock Holding Company (OSHC) Barki Tojik, Tajikistan's national power company which was acting as a Grant Implementing Agency, to facilitate the preparation of Phase I of the Nurek Hydropower Rehabilitation Project (HRP). The development objective of the Nurek Hydropower Rehabilitation Project is to rehabilitate and restore the generating capacity of three power generating units of the Nurek Hydropower Plant, improve the efficiency of the generators, and strengthen the safety of the Nurek dam.

In March of 2017, the GoT and WB, acting as the administrator of grant funds provided under CAEWDP signed an agreement to extend the grant to the GoT in the amount of US$ 250,000 for the Nurek Hydropower Rehabilitation Project.

The Grant supported activities which enhanced project preparation and implementation readiness in three ways. First, additional Nurek HRP site investigations including geotechnical investigations, seismic analysis, and flood management assessments were conducted and informed the project design and safety measures to be undertaken during project implementation. Second, bidding documents for the key procurement package for power plant rehabilitation were developed. Third, the Dam Safety Panel of Experts (PoE) established under this activity provided independent review and expert advice on the project design, dam safety, and other technical aspects during the project preparation.

Kyrgyz Republic: Heating Efficiency Improvement (Investment Preparation) activity was completed in 2017. The activity addressed the challenge of providing reliable and affordable heating supply to the people of the Kyrgyz Republic in urban and rural areas. In July 2017, the CAEWDP team provided a training on efficient and clean stove production to the Kyrgyz stove producers. The work performed by the team between 2016 and 2017—the activity duration—informed the design of an investment lending component of the IDA financed project: Heat Supply Improvement Project. The project was approved by the WB Board in October 2017.

Energy-Water Linkages Pillar

In Central Asia, the sectors most at risk from climate change are agriculture, energy, and water resources. Climate change challenges and increasing water scarcity highlight the interconnectedness between these various sectors. In agriculture, which is critical for the largely rural livelihoods in the region, productivity (including

in both rainfed and irrigated systems) is sensitive to variations in rainfall, hydrologic flows modulated by snow accumulation and melt, system storage, and evapotranspiration. Energy systems are sensitive to hydrologic changes (e.g., in the case of hydropower), demand changes (e.g., in warmer areas in summer), the impact of extreme events on transmission systems, as well as mitigation actions (e.g., in the case of fossil fuels). Key areas to address climate vulnerability include: increasing clean energy and energy efficiency, strengthening disaster-risk management, as well as improving water and other natural resources management.

CAEWDP's Energy-Water Linkages pillar seeks to improve the understanding of the connections between energy and water at the national and regional levels through exploring the future impact of climate change, facilitating regional dialogue, and strengthening the knowledge networks. The 2017 program activities reflected these objectives; the activities completed in 2017 are described below.

Central Asia Knowledge Network (Institutional Strengthening) activity aimed to foster cooperation, knowledge exchange, youth engagement, and innovative methods among regional institutions in the areas of water, energy, and climate issues. The team, in partnership with the World Bank Institute (WBI), established a Central Asian Knowledge Network, which helped to establish new and enhance existing Communities of Practice (CoPs) and linked these CoPs together via in-person activities and virtual platforms.

In 2017, the *National Cross-Sectoral Working Group in the Kyrgyz Republic*—a CoP established by CAEWDP activity— developed a methodology for mudflow hazard prediction, which was presented to the Ministry of Emergency of the Kyrgyz Republic. Additionally, in 2017, this activity established the *Central Asia Youth Forum on Water (CAYFWater)* CoP in collaboration with the German-Kazakh University (GKU) to provide a greater voice to young people. The first meeting of CAYFWater members took place in Summer of 2017 in Kyrgyz Republic.

Climate Adaptation and Mitigation Program for Aral Sea Basin Series of Projects II (Investment Preparation) had an objective to build upon the Climate Adaptation and Mitigation Program for the Aral Sea Basin (CAMP4ASB) investment project and support Kazakhstan's participation in CAMP4ASB. As Kazakhstan decided to pursue climate mitigation and adaptation activities with its own financial resources, the continuation of the preparation of the affiliated Bank investment project was discontinued and this activity financed technical assistance (TA) for the Kazakh government, which pursues climate adaptation and mitigation objectives with national financing.

Central Asia Water Resources Management (CA-WARM) Phase-I Project (Investment Preparation) aimed to improve national and regional water resources information management and analysis systems by increasing their accessibility and reliability at the national and regional scales. It also supported dialogue with national working groups, the Regional Working Group (RWG), and the Regional Steering Committee (RSC). In early 2017, the WB decided that establishment of WIS will be pursued through national portfolio engagements rather than through a regional program and the affiliated WB project was dropped. Activities to support WIS establishment at the national level will continue under CAEWDP 3.0.

Technical Assistance for Developing Water Information Systems in Asia Central (Investment Preparation) provided analytical foundations for the Central Asia Water Resources Management Project (CAWaRM), which aims to strengthen water information management systems by increasing accessibility, reliability, and analytical capacity of water resources information. This activity supported development of the concept for a needs assessment to roll out WIS establishment in the Vakhsh sub-basin, an activity that will be implemented with CAEWDP 3.0 financing.

Tajikistan Water Information System Study Tour (Institutional Strengthening) was organized in response to plans of the newly established Ministry of Energy and Water Resources (MEWR) to design and establish a Water Information Center in Tajikistan. The activity supported the organization of a study tour for Tajik water experts to visit Armenia and the USA in order to equip them with additional knowledge on Water Information Systems (WISs) and Decision Support Systems (DSSs). In each country, the experts examined local water management organizations, observed a demonstration of WIS at work, received hands-on experience with automated water services in the field, and attended discussion sessions.

TABLE 3 — ACCESS TO IMPROVED WATER SOURCES IN 2010[13]

	Access to improved water sources in 2010 (% of population)		
	National	Urban	Rural
Afghanistan	50	78	42
Kazakhstan	95	99	90
Kyrgyzstan	90	99	85
Tajikistan	64	92	54
Turkmenistan	84	97	72
Uzbekistan	87	98	81
Central Asia	**74**	**94**	**64**

Water Productivity Pillar

Regional water challenges relate chiefly to the availability, efficiency and productivity of water use. Population and economic growth are increasing stress on the region's natural resources.[11]

Water resources are by and large directed to vast agricultural production (89 percent of total abstraction) on over 10 million hectares. With very low rainfall and low humidity levels in the plains, water is the limiting factor in agricultural livelihoods and irrigation has been essential for agricultural development along the Syr Darya and Amu Darya, and it provides jobs to the majority of rural populations. During the Soviet Union era, water allocation and irrigation system infrastructure was well maintained and operated with massive funding from the central government. This situation has changed dramatically with important changes in policy, technical management and institutional capacity. The changes from a planned economy to a market economy with differences in land tenure, water rights and farm organization have led to a collapse of the state collective farms with a not yet very successful smaller private farming sector and an overall deterioration of infrastructure and cross-country management of infrastructure. A major flipside of this diversion of water to irrigate the vast agricultural fields in the region is that it has contributed to severe environmental problems in the Aral Sea basin.

Access of the population to improved drinking water sources is wide spread within the region: Tajikistan, with 64 percent, has the lowest access rate in the region; Kazakhstan, with 95 percent is at the top. Water supply and sanitation (WSS) systems are generally characterized by aging, poorly maintained assets.

There is a strong need for countries in the region to manage their water endowments more productively and efficiently, as this plays a large role in determining their capacities to achieve water and energy security. The CAEWDP Water Productivity pillar seeks to address these challenges through support to increasing productivity and the efficiency of water use in the water and energy sectors. The 2017 program activity—and more so those of previous years and planned CAEWDP activities—reflected these objectives.

The sole activity completed by the Program under this pillar in 2017 is Analysis of Water Supply and Sewerage Services in Central Asia (Analytical Development). The activity conducted a diagnostic of the status and challenges in the water supply and sanitation (WSS) sector in Tajikistan and Uzbekistan by examining the WSS sectors, determining the problem areas, and proposing policy reforms towards improved access, quality, efficiency, and sustainability of WSS services. The findings and recommendations provided in two reports produced during the activity period improved fact-based dialogue with client countries on sector reform and informed decision-making in the WSS sector.

11. If the Central Asian population continues to grow by 1.5 percent annually, the region will become water stressed by 2050, water short in 2080 and water scarce within 100 years Commonly used thresholds for water stress, water shortage and water scarcity are 1,700, 1,000 and 500 m^3 per person per year, respectively. These measures are limited in that they do not reflect the efficiency of use of water.

12. Data from 2010. Source: http://www.fao.org/nr/water/aquastat

2.4 CAEWDP 3.0 INCEPTION

CAEWDP 1.0 and 2.0 demonstrated that the Program objectives can be successfully achieved in an environment of limitations to regional cooperation. More recently, the countries in the region have made significant commitments and progress in terms of regional cooperation, promising a more enabling environment for Program activities in the future. As the political transition in the region present potential new opportunities for cooperation, it will become increasingly important to continue engagement in Central Asia. This engagement aims at further strengthening national and regional institutional capacities and the enabling environment for national priorities and regional priorities to eventually converge. This will be a long-term process, which will require continued commitment from development partners.

In July 2016, development partners (WB, SECO, EC, DFID, and USAID) agreed on the development a new funding phase for CAEWDP. From July 2016 onwards, the CAEWDP team prepared a Concept Note for CAEWDP 3.0, which was approved at the July 2017 DAC meeting between the World Bank and development partners. In November 2017, SECO committed to US$ 3.5 million funding for the Program's third phase and a new Multi-Donor Trust Fund was created for implementation start in January 2018.

The Program development objective of CAEWDP 3.0 is to strengthen the enabling environment to promote energy and water security at the regional level and in the beneficiary countries of Afghanistan, Kazakhstan, the Kyrgyz Republic, Tajikistan, Turkmenistan, and Uzbekistan. CAEWDP 3.0 integrates the lessons learned from the Program's previous engagement in the region. The main points considered for the CAEWDP 3.0 design include:

- Successful facilitation of regional cooperation on energy and transboundary water resources management requires sustained and continued engagement, as well as a dedicated presence on-the-ground to facilitate dialogue.
- Solutions that address national issues, related to energy and water use efficiency (e.g. solutions for the winter energy crisis and increasing irrigation efficiency), will benefit regional cooperation, as windows of opportunity open.
- Training activities and knowledge sharing at all levels (policy-making, technical, and administrative) raise comfort levels and strengthen the ability of stakeholders to better manage energy and water resources, lead to greater awareness of the regional inter-dependence, as well as the need to apply an incremental approach to addressing competition over these resources.
- Coordination of the wide range of development partners supporting identical and similar objectives in the region will multiply the impact of the activities of each individual organization, by avoiding duplication and taking advantage of complementarity.

The integration of these lessons resulted the following adjustments of the Program for the next funding phase of CAEWDP (CAEWDP 3.0):

- The program development objective shifts to greater emphasis from water productivity to water security, reinforcing the need "to strengthen the enabling environment to promote energy and water security at the regional level and in the beneficiary countries."
- Afghanistan, a key riparian country in the Aral Sea basin, joins Kazakhstan, the Kyrgyz Republic, Tajikistan, Turkmenistan and Uzbekistan as a Program beneficiary country.
- The pillar structure and content are adjusted with an increased focus on facilitating energy and water security as the guiding principles of the entire Program.
- National activities have an important role as building blocks to achieve energy and water security at the regional level.
- Increased emphasis is put on capacity building for, and within, institutions and on dialogue to catalyze investments.
- Presence of the CAEWDP team in the region is increased to facilitate regional dialogue and implementation of regional and national initiatives.

The objective will be achieved through a Program that is built on three pillars: (i) Energy Security pillar: Supporting policy and investment activities at national, bi/multi-lateral and regional levels to improve the security and economic efficiencies of energy supply; (ii) Water Security pillar: Supporting activities related to water use aspects at the national, bi/multi-lateral and regional levels, as well as for national integrated water resources management and development (IWRM) to achieve water security, and (iii) Energy and Water Linkages pillar: Supporting activities related to the intersection of energy and water (water-energy nexus) at the national, bi/multi-lateral and regional levels; performing IWRM activities that link two or more countries, including those related to climate change, as well as facilitating regional and cross-border dialogue processes. The Program is structured in a matrix framework (Figure 6) in which the three thematic pillars are implemented through activities that fall under four crosscutting components[13]: (1) Data and Diagnostic Analysis; (2) Institutions, Capacity and Dialogue; (3) Supporting Investments, and (4) Program Management.

CAEWDP 3.0 will support national, as well as cross-border efforts, to strengthen energy and water security. National activities, such as institutional strengthening and efficiency improvements, contribute to, and present fundamental building blocks to achieve energy and water security, sustainable development and climate resilience at the regional level. Although the overall objective and long-term goals are clear, the opportunities to move forward on the regional level will ebb and flow and CAEWDP 3.0 will maintain the flexibility to respond to changing insights and shifting political priorities and opportunities. The program will maintain and further strengthen the linkages with the country-based projects and programs, as well as seek synergies between these and the regional initiatives of the World Bank and other development partners.

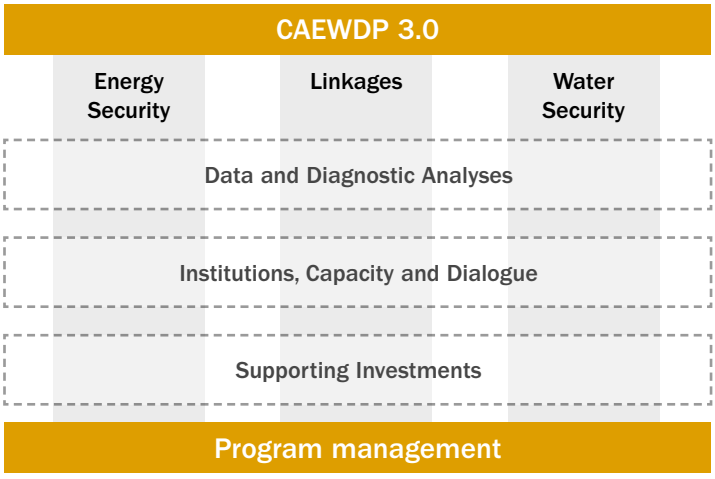
A central focus of CAEWDP 3.0 will be to continue to work with development partners to: deepen efforts to establish the parameters for cooperation at the technical and institutional levels, strengthen available databases, harmonize sectoral policies and regulations to facilitate cross-border connectivity and trade, and to facilitate dialogue. CAEWDP 3.0 will implement activities that have proven successful in creating platforms for dialogue and information exchange, such as the Central Asia Knowledge Network, as well as scale-up analytical work that shows clear potential to inform policy reform and investments. Additional emphasis will be placed on strengthening the sectoral capabilities at the national level as building blocks to facilitate cross-border engagement and regional cooperation in the future. Capacity-building activities will be implemented at the national and regional levels and will also be used to create opportunities for technical experts from the various beneficiary countries to collaborate with each other, gain trust and exchange their knowledge across borders.

FIGURE 6 — CAEWDP 3.0 PILLAR AND COMPONENT STRUCTURE

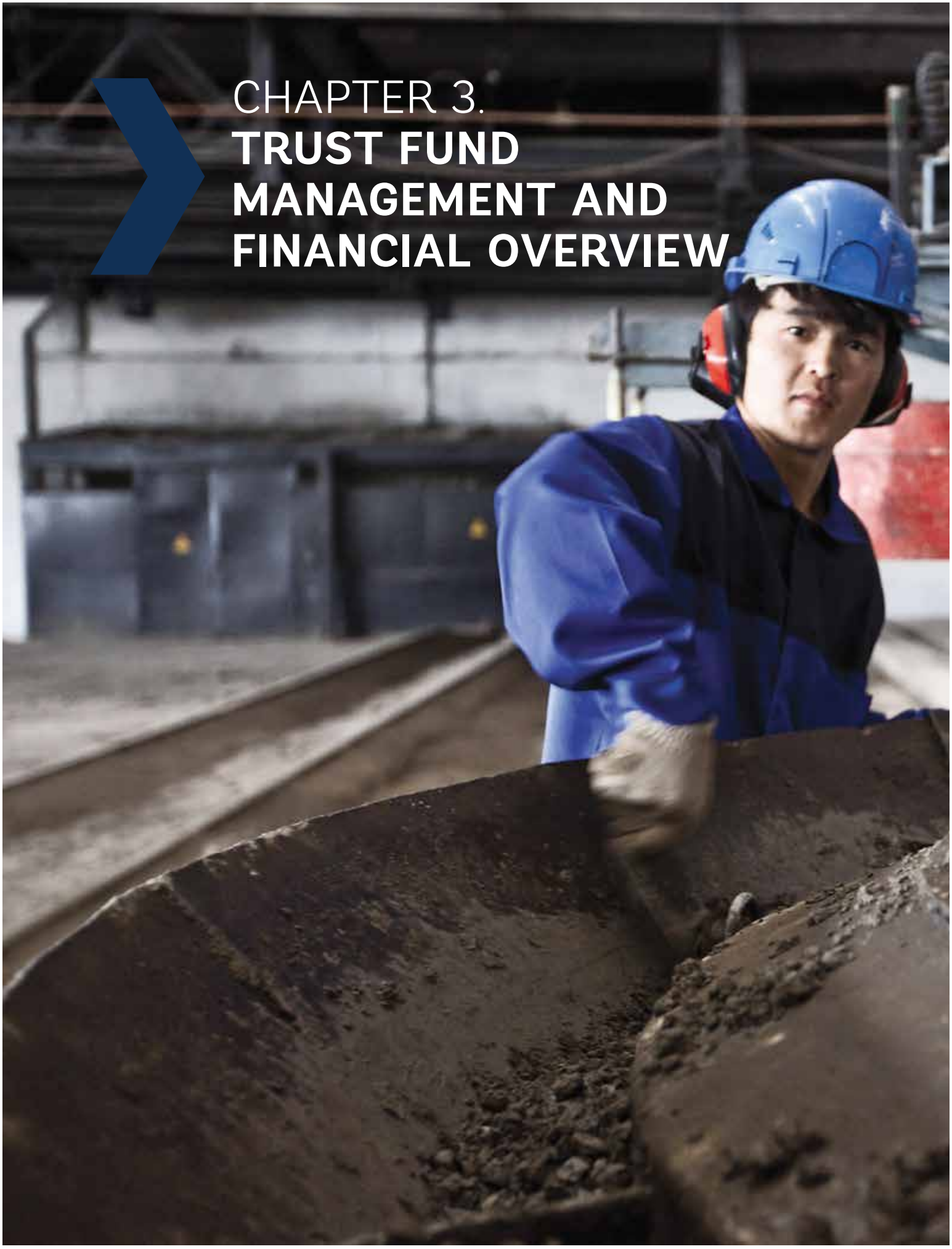
Energy Security Pillar:
Regional & National Energy Generations/Transmission/Trade/Use

Water Security Pillar:
Regional & National Water Use; National IWRM

Linkage Pillar:
Regional Dialogue & Water Resources Cooperation; Regional & National Energy-Water Linkages



13. Some activities may touch on more than one component e.g. diagnostic analysis that supports identification of investments.



CHAPTER 3.
TRUST FUND MANAGEMENT AND FINANCIAL OVERVIEW

3.1 PROGRAM ADMINISTRATION

The end of 2017 saw the completion of the CAEWDP second phase (CAEWDP 2.0). In 2017, the core team supported the closure of grants in the second phase, while setting up the third phase (CAEWDP 3.0) of the Program. The team developed a Monitoring and Evaluation (M&E) system for the Program as well as raising support from the donor community. A new Trust Fund was created for implementation of CAEWDP 3.0 with launch in January 2018.

3.2 COMMUNICATION, OUTREACH AND DONOR ENGAGEMENT

CAEWDP started implementation of the Communication and Outreach Strategy in 2015. This Strategy, which is focused on supporting program delivery and boosting impact-focused outreach activities, was presented and approved at the November 2014 DAC meeting. The outreach activities performed by the CAEWDP under the umbrella of the new Strategy aimed to strengthen knowledge sharing and increase key internal and external stakeholders' understanding of CAEWDP. Since 2016, the Strategy was implemented through two components: knowledge management and communications. In 2016, an Outreach and Dissemination Trust Fund was developed to support CAEWDP outreach and dissemination related activities starting March 2016.

The knowledge management component of Communication and Outreach Strategy yielded eight outputs in 2017. The team produced blogs on knowledge networks and water use efficiency in irrigation. Additionally, three project reports,[14] two short activity videos on CAEWDP and efficient stoves (Kyrgyz Republic: Heating Efficiency Improvement activity), and the 2016 Annual Report were produced and uploaded to the CAEWDP website. The activities undertaken to increase knowledge sharing through updating the Program website and adding new content resulted in increased website traffic; the CAEWDP English language site was visited 3,654 times by 2,040 unique visitors, who downloaded 628 documents in fiscal year 2017 (between July 2016 and June 2017). This is a significant increase in comparison with fiscal year 2016: 173 website visits and 141 unique visitors. Additionally, the team started working on the CAEWDP impact report and program brief for publication in 2018.

14. World Bank. 2017. Central Asia energy-water development program : annual report 2016 (English). Washington, D.C. : World Bank Group. http://documents.worldbank.org/curated/en/979261502174391564/annual-report-2016 Aldayarov, Mirlan; Dobozi, Istvan; Nikolakakis, Thomas. 2017. Stuck in transition : reform experiences and challenges ahead in the Kazakhstan power sector (English). Directions in Development. – Energy and Mining. Washington, D.C. : World Bank Group. http://documents.worldbank.org/curated/en/104181488537871278/Stuck-in-transition-reform-experiences-and-challenges-ahead-in-the-Kazakhstan-power-sector Myroshnychenko, Yuriy; Owen, Kirby. 2016. Enhancing regional power trade in Central Asia (English). Washington, D.C. : World Bank Group. http://documents.worldbank.org/curated/en/672501486549955103/Enhancing-regional-power-trade-in-Central-Asia

3.3 FINANCIAL OVERVIEW

A cumulative total of US$ 10.7 million was disbursed under CAEWDP 2.0 activities by the end of the Program (Figure 8). Among Program pillars, Energy-Water Linkages accounted for about 44 percent of Program financing, while Energy Development accounted for 34 percent. The remaining grant funding was allocated for Water Productivity (7 percent) and strategic program management, which includes dissemination and outreach activities, as well as the preparation of CAEWDP 3.0. The proportions of allocations are outlined in Figure 7.

The program disbursement rate increased during 2017. Total disbursements in 2017 representing 99.9 percent of total allocations was due the closing of the remaining CAEWDP 2.0 activities that were under implementation in 2017 and closing with the second funding phase on December 31, 2017. At the close of the second funding phase, US$ 245,681.77 was the remaining balance in the CAEWDP 2.0 MDTF. As per agreement among all development partners, this remaining balance will be transferred to the new CAEWDP 3.0 MDTF to benefit implementation of the third funding phase.

FIGURE 7 — PROPORTION OF TOTAL PROGRAM ALLOCATION PER PILLAR IN 2017 (%)

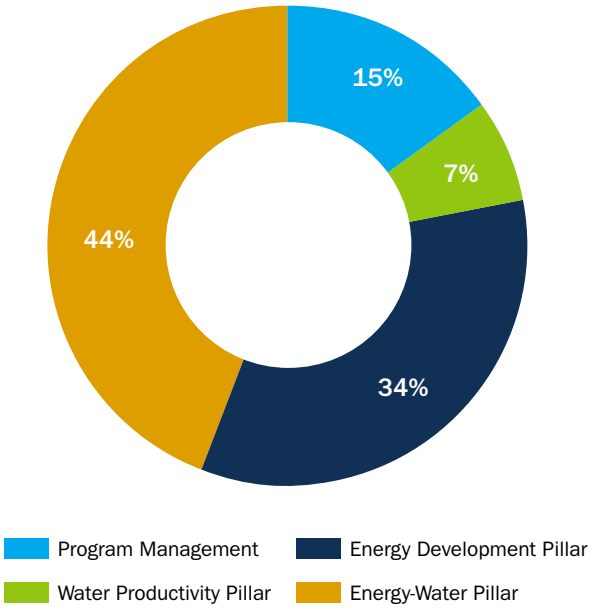


FIGURE 8 — CUMULATIVE CAEWDP 2.0 DISBURSEMENTS (US$ MILLIONS, 2012-2017)

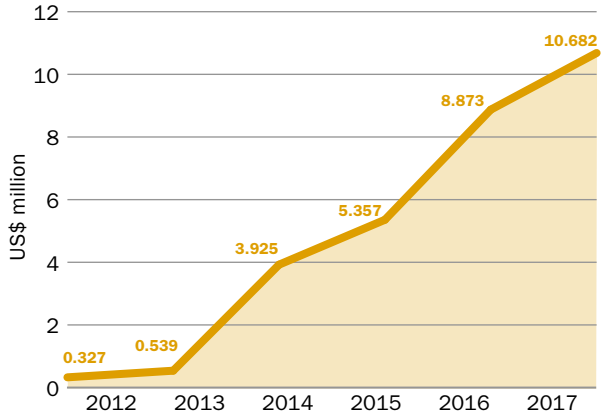
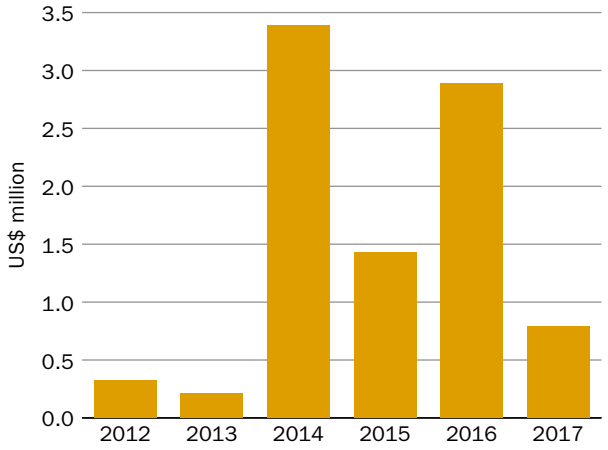


FIGURE 9 — ANNUAL PROGRAM DISBURSEMENTS (US$ MILLIONS, 2012-2017, EXCLUDING PROGRAM MANAGEMENT COSTS)



ANNEX I – PROGRAM ACTIVITIES' DESCRIPTIONS[15]

ENERGY DEVELOPMENT PILLAR

Activity Title
Energy Vulnerability to Climate Change

Activity Status
Completed

CAEWDP Grant Amount
US$48,695

Task Team Leader
Daryl Fields and Abena Akuffo-Akoto

The objective of this activity was to help the Government of Tajikistan understand energy sector vulnerabilities to climate change and build resilience through the development of coordinated adaptation policies with other Central Asian countries. The assessments performed as part of this activity provided the most current climate change projections for Tajikistan, the impact on energy sector, and adaptation measures. These findings can guide Tajik decision-makers on current and future investments into the energy sector.

The assessment performed by this activity, due to uncertainties over future greenhouse gas emissions and other factors that influence climate change, used four climate change scenarios (arid, hot-dry, central, warm-wet) to evaluate potential climate change impacts. The scenarios were developed to look at impacts by the years 2030 and 2050. Each scenario considered two additional sub-scenarios: (1) including the impact of the construction of the Rogun hydropower plant (HPP) and (2) without the Rogun HPP, but with other smaller HPPs operating instead. The analysis of both sub-scenarios showed increases (+5%) in annual energy supply due to climate change under the warm-wet climate scenario, where runoff increases. Under the arid climate scenario, where runoff decreases, decreases in energy supply were found in both cases (-10% with Rogun, -5% without Rogun).

The main impacts related to changes in average winter temperatures by the 2050s are reduced demand (-34%) for space heating due to warmer winters and an up to 10% increase in hydropower production. Under the arid scenario, Nurek hydropower production is reduced by up to 40%, and Rogun by up to 55%. The main impacts related to changes in average summer temperatures by the 2050s are: increased demand for space cooling, a decrease in Nurek hydropower production by 25%, and a decrease in Rogun hydropower production by 35%.

The changes in frequency, timing, and intensity of extreme events will affect power generation, transmission, and distribution. Additionally, the changes in weather patterns will impact agriculture, hydropower, construction, transportation, communication, public utilities, and housing sectors. Considering that about 61% of Tajikistan's economy is weather sensitive, the financial impacts of climate change could be devastating.

The implementation of strategies and the adaptation plan provided by the CAEWDP team are divided into three stages: (1) initial information gathering, scoping and capacity building; (2) institutional and policy reform; and (3) practical actions. The recommendations include the following: investing prudently in new energy supplies; implementing robust decision-making processes; improving use of monitoring, forecasting and modelling; strengthening institutional capacity and knowledge networks; expanding climate change resilient hydropower engineering; expanding climate change resilient transmission and distribution engineering; enhancing regional coordination; and improving energy and water efficiency.

This study raises awareness on the scope of the issues that climate change may bring and knowledge on climate change adaptation measures that may mitigate climate risks in Tajikistan. The knowledge generated by this activity contributed to regional discussion of climate change issues and measures to combat them.

15. The total number of activities described under this Annex (12 activities) does not match the total number of activities implemented by the end of 2017 fiscal year (13 activities) due to the following adjustment: Advisory Support for the Regional Trade Initiatives Project for the Kyrgyz Republic and Advisory Support for the Regional Trade Initiatives Project for Tajikistan are reported as a single CASA-1000 Advisory Support activity.

Activity Title
Central Asia Regional Economic Program (CAREC Engagement)

Activity Status
Phase I: Completed; Phase II: Completed

CAEWDP Grant Amount
US$340,987(Phase II)

Task Team Leader
Husam Mohamed Beides

This activity focused on developing platforms for regional investment, analysis, and dialogue in the Central Asian energy and water sectors, while focusing on two institutions: The Central Asia Regional Economic Cooperation (CAREC) Energy Sector Coordinating Committee (ESCC) and—during Phase I—the Executive Committee of the International Fund for Saving the Aral Sea (EC-IFAS). This activity funded CAEWDP's engagement with the CAREC ESCC and EC-IFAS.

CAREC ESCC is a regional platform that facilitates dialogue on energy issues in Central Asia. The dialogue occurs through three levels of CAREC ESCC meetings: The CAREC Energy Sector Coordinating Committee (ESCC) level, the CAREC Senior Officials Meeting (SOM) level, and the CAREC Ministerial Conference (MC) level—the highest level of CAREC ESCC meetings. The ESCC primarily focuses on energy issues, while the entire CAREC Program— a partnership of 11 countries and six multilateral development partners—covers four sectors: transport, trade facilitation, trade policy, and energy. The first phase of the CAREC Engagement activity started in 2009 when the CAEWDP WB team participated in several CAREC ESCC meetings chairing the meeting sessions on regional energy cooperation and energy-water linkages. During those meetings, the WB team supported the Asian Development Bank (ADB) in developing CAREC ESCC's Energy Action Plan (EAP).

The ESCC's EAP for 2010-2012 was approved in 2009. It was implemented over ten ESCC meetings, during which time the ESCC members provided guidance, oversight, and decisions for individual activities. The WB (represented by CAEWDP), ADB, and USAID funded and executed the individual activities in conjunction with ESCC members. The EAP was structured on three core elements or pillars focused on: 1) Energy demand/supply balance and infrastructure constraints; 2) Regional dispatch and regulatory development; and 3) Energy-Water Linkages. These pillars were reflected in the ESCC Energy Work Plans (EWPs). The 2013–2015 EWP is anchored in CAREC 2020 (the strategic framework for the CAREC Program 2011-2020) and the Energy Strategy, which together provide the basis for determining future priorities in the energy sector for the region.

During the second phase of the CAREC Engagement, the activity focused on 1) enhancing energy sector dialogue among the Central Asian states and 2) ensuring coordination of donor assistance through funding CAEWDP's participation in all three levels of CAREC ESCC meetings. Because CAREC ESCC oversees implementation of an EAP and specific analytical and capacity-building initiatives, it served as a unique platform that convened energy experts and decision-makers from CAREC countries.

CAEWDP energy team has participated in CAREC ESCC meetings; commissioned studies and capacity building events that corresponded with the ESCC Energy Work Plan (EWP) framework; presented findings of studies implemented under the ESCC EWP; provided recommendations during CAREC SOMs and CAREC MCs; tracked and discussed ESCC EWP progress; and collaborated with CAREC members and development partners to coordinate implementation of the decisions made during the SOMs and MCs. During these engagements, CAEWDP team members shared information on other CAEWDP activities including: Energy Sector Vulnerability to Climate Change, Progress on the CASA-1000 Project, The Central Asian Knowledge Network, The Basin Economic Allocation Model, Central Asia Water and Energy Data Portal, and Enhancing Regional Power Trade in Central Asia.

Additionally, CAEWDP supported the EC-IFAS's efforts in preparation for the Third Aral Sea Program Plan (ASBP-3)— a long-term action program for Central Asia focused on of sustainable development, water resources management, and environmental protection.

The most significant benefits of this activity were 1) integrating energy-water linkages into the CAREC energy agenda, 2) strengthening institutional capacity of CAREC ESCC, and 3) preparing ASBP-3. In this context, the activity helped to prepare region wide water and energy strategies; create and disseminate knowledge on the technical, economic, and political issues pertaining to cooperation; and increase coordination among development partners, in particular the ADB and WB.

Activity Title
CASA-1000 Advisory Support for the Regional Trade Initiatives (2 RETFs): The Kyrgyz Republic and Tajikistan.

Activity Status
Completed

CAEWDP Grant Amount
US$1,149,483

Task Team Leader
Husam Mohamed Beides

This activity was a part of the US$ 1.1 billion[16] CASA-1000 investment project. The role of this activity was to facilitate the initial preparatory work for the investment project. The CASA-1000 Project aims to facilitate 1,300 megawatts in electricity trade between Central Asia (the Kyrgyz Republic and Tajikistan) and South Asia (Afghanistan and Pakistan) by creating conditions for a sustainable market. This CAEWDP activity supported the investment project by providing technical assistance to the Kyrgyz Republic and Tajikistan to complete domestic procedures essential for the financial agreements to enter into force.

This activity operated as a Recipient Executed Trust Fund (RETF) and supported the local working groups (WGs) during the preparatory phase of the CASA-1000 project. In Tajikistan, the grant was managed by the Open Stock Holding Company (OSHC) Barki Tojik (BT)—Tajikistan's implementing agency—which used the grant to receive assistance from legal and commercial consultants. The consultants provided commercial and legal inputs on CASA-1000 legal agreements: Subsidiary Agreement, Project Implementation Agreement, and Host Government Agreement. The consultants also facilitated preparation of the country-specific Environmental and Social Impact Assessment (ESIA), work on two high-voltage converter stations tender, CASA-1000 Joint Working Group's (JWG) business-related travels, and audit of the implementation agency. In the Kyrgyz Republic, the RETF was managed by Open Joint-Stock Company (OJSC) National Electrical Grid of Kyrgyz Republic (NEGK). OJSC NEGK operated similar to BT: It used the RETF to fund preparation of the ESIA, JWG meetings, the OJSC audit, and other legal and commercial consulting services. The consultants facilitated the preparation of the draft Revenue Management Plan, Host Country Agreement, Government Guarantee and signing and approval of financing agreements with the World Bank, European Investment Bank, and the Islamic Development Bank.

Activity Title
Tajikistan Winter Energy Program

Activity Status
Completed

CAEWDP Grant Amount
US$580,624

Task Team Leader
Takhmina Mukhamedova and Yabei Zhang

The objective of this activity was to support pre-investment studies that focus on enhancing winter energy security in Tajikistan. The activity focused on two areas: Efficiency of heating solutions in rural areas and rehabilitation of the Nurek Hydro Power Plant (HPP). The activity successfully completed the pre-investment studies and contributed to four follow-up investment projects: *Nurek HPP Rehabilitation Project* (funded by WB, AIIB, and EDB), *CASA-1000 Community Support Project* (CSP) *in Kyrgyz Republic* (WB funded), *CASA-1000 CSP in Tajikistan* (WB funded), and *Heat Supply Improvement Project* (WB funded).

Two sub-activities under this larger activity—the *Supervision Support to The Nurek HPP Studies and Design of a Nurek HPP Rehabilitation Program*—carried out the following duties: assisted the Ministry of Energy and Water Resources (MoEWR) and Barki Tojik (BT) in the preparation of feasibility reports for the Nurek HPP's rehabilitation; assisted BT in the preparation of Terms of References, bidding documents, and contracts for consultants who prepared the rehabilitation design; reviewed and commented on reports and recommendations from the consultants; and supported the preparation of a phased rehabilitation program for the Nurek HPP that took into account financing and operating constraints.

This activity implemented the *Efficient Stoves and Heating Solutions* task which included an assessment of heating and cooking needs in rural single family homes, an assessment of heating needs in rural public buildings, an analysis of heating models most commonly used in homes and public buildings, the design and testing of cleaner and more efficient stoves,

16. The CASA 1000 project catalyzes support of a wide number of multi and bilateral development partners including the World Bank, Islamic Development Bank, European Investment Bank, European Bank for Reconstruction and Development, the US and UK Governments and the World Bank administered Afghanistan Reconstruction Trust Fund

a study of the stove supply chain (stove manufactures, distributors, and retailers), and options for scaling up provision for the new stoves. After the assessment phase, the CAEWDP team decided to test the heating stoves in Tajikistan and in the Kyrgyz Republic—which has similar winter energy security issues as Tajikistan. In collaboration with the governments of the Kyrgyz Republic and Tajikistan, the CAEWDP team launched two pilot programs. The programs installed energy-efficient heating stoves in 51 low-income households in the Kyrgyz Republic and 40 stoves in rural households, schools, and kindergartens in Tajikistan.

The *Efficient Stoves and Heating Solutions* task developed new cleaner, energy-efficient heating technologies. The pilot projects in the Kyrgyz Republic and Tajikistan showed that the innovative heating stoves use 45 to 50 percent less fuel; need refueling every 10 to 15 hours (compared to the previous 2 to 3 hours); and reduce carbon monoxide emissions by 50 percent and fine particulate (PM2.5) emissions by over 90 percent.

The outcomes of both tasks conducted under this activity informed new winter energy related investment projects. In both Tajikistan and the Kyrgyz Republic, the respective US$ 10 million CASA-1000 CSP and US$ 12 million CASA-1000 CSP projects will include provisions for heating stoves. In Tajikistan, the studies on the rehabilitation of the Nurek HPP led to a US$350 million investment project that will improve the HPP's performance.

Activity Title
Advisory Support for the Phase I of Nurek Hydropower Rehabilitation Project (RETF)

Activity Status
Completed

CAEWDP Grant Amount
US$250,000

Task Team Leader
Artur Kochnakyan and Takhmina Mukhamedova

The objective of this activity was to provide support to the existing investment project—*Nurek Hydropower Rehabilitation Project Phase I*. This investment project aims to improve access to affordable energy in winter for the Tajik population by rehabilitating and restoring the generating capacity of three power generating units of the Nurek Hydropower Plant (HPP), improving their efficiency, and improving the safety of the Nurek Dam. The activity—a sub-project under the umbrella investment project—provides advisory support to OSHC Barki Tojik (BT), Tajikistan's national power company. In March of 2017, the GoT and WB, acting as the administrator of grant funds provided by multiple donors under CAEWDP, signed an agreement to extend the grant to the GoT in amount of US$ 250,000 for the Advisory Support for Phase I of Nurek Hydropower Rehabilitation Project. The GoT, using BT as the implementing agent under a Subsidiary Agreement, facilitated the preparation of Phase I of the Nurek Hydropower Rehabilitation Project. Under this agreement, CAEWDP advises BT.

The activity focused on the provision of consultants' services for: 1) Additional Nurek HPP site investigations to inform the project design and safety measures to be undertaken during the Nurek HPP implementation; 2) engagement with an experienced international project management consultant to assist with the detailed design of the rehabilitation and dam safety works, the tendering processes, and supervision of the works; and 3) engagement with experienced international experts for the Dam Safety Panel to provide an independent review and expert advice on dam safety and other technical aspects during the project preparation and implementation periods.

By 2017, this activity helped finalize feasibility studies for the US$ 350 million Nurek Hydropower Rehabilitation investment project. The outcomes of the studies will help design an investment program to extend Nurek HPP's operational lifetime, increase its generation output, and enhance dam safety.

Activity Title
Kyrgyz Republic: Heating Efficiency Improvement

Activity Status
Completed

CAEWDP Grant Amount
US$245,582

Task Team Leader
Kathrin Hofer and Yabei Zhang

This activity aimed to address the challenge of providing reliable and affordable heating supply to the people of the Kyrgyz Republic. The activity focused on aiding both urban and rural areas of the Republic. To meet public and residential heat demand in urban areas, the activity focused on households connected to the district heating (DH) system and included two components: Scoping priority investments to improve the efficiency and reliability of the DH system and recommending policy reforms that would support implementation of priority investments and the transition towards consumption-

based billing. The CAEWDP team, in close collaboration with the Bishkekteploset DH company, developed the investment plan. The plan contains: A detailed list of investment measures and implementation steps, the cost of each investment measure based on local market prices, the estimated energy cost savings and other benefits associated with each measure, and detailed guidance on remaining preparatory work and timetables.

The activity also focused on households in the rural areas of the Kyrgyz Republic. It helped to improve access to more efficient heating technologies for homes and public buildings by: Assessing the demand and supply for individual heating technologies, conducting outreach activities to increase awareness of the benefits of improving heating technologies, supporting the development of five locally-adapted prototype stoves that have thermal efficiencies of at least 70 percent, implementing a pilot project in 51 low income households, and informing the design of an investment lending component on clean and efficient heating stoves.

These activities informed and prepared a follow up World Bank investment project–Heat Supply Improvement Project. The project will improve reliable and efficient heat supply for households with and without access to a centralized heat supply and therefore will support the Government's long-term strategy in the heating sector of meeting winter heat demand, modernizing the DH system, and increasing heat and hot water tariffs. The investments will improve heat supply for more than 215,000 people by installing 1.8 kilometers of district heating pipelines, 1,931 substations, 4,020 hot water meters, and 14,000 heating stoves.

ENERGY-WATER LINKAGES PILLAR

Activity Title
Central Asia Knowledge Network

Activity Status
Completed

CAEWDP Grant Amount
US$429,982

Task Team Leader
Julia Komagaeva

The objective of this activity was to foster cooperation, knowledge exchange, youth engagement, and innovative methods among regional institutions in the areas of water, energy, and climate issues. The CAEWDP team, in partnership with the World Bank Institute (WBI), established a Central Asian (CA)Knowledge Network, which helped to establish new and enhance existing Communities of Practice (CoP) and linked these CoPs together via in-person activities and virtual platforms. All CoPs are linked to each other vis virtual collaboration platform—Central Asia Knowledge Alliance for Development (CAsKADe)—under World Bank Collaboration for Development (C4D) platform. The activity supported five CoPs during the 2014-2017 period; four of these CoPs are currently operational with one scheduled to start next year. This activity will continue in CAEWDP 3.0.

CA Knowledge Network coordinates five CoPs. *Regional Cross-Sectoral Working Group (CWG) in Kazakhstan* CoP, established in 2012 by GIZ's *Climate Adaptation Project for Central Asia*, analyzes water-related disasters, devises risk reduction approaches, and communicates them to decision makers. This CoP helped to establish another CoP: *National Cross-Sectoral Working Group in the Kyrgyz Republic* in 2015, and recently established a similar CoP in Tajikistan, which still needs to be operationalized. These CWGs have an impact on decision-making in the region: Recommendations proposed by the Working Group on the Shardara Dam's safety issues (2014) and mudflows (2015-16) were adopted by the Kazakh Government in 2014 and 2016, respectively; in 2016, the Kyrgyz CWG submitted an Appeal to the Government to implement mudflow protection measures that would reduce the risk of mudflows nationwide. In 2017, the Kyrgyz CWG developed a methodology for mudflow hazard prediction, which was presented to the Ministry of Emergency of the Kyrgyz Republic.

Through the CA Knowledge Network, the CWG CoPs are linked with the German-Kazakh University (GKU), which is a part of *Academic Network in Central Asia* CoP. The activity established this CoP in 2014; currently it consists of knowledge institutions from five Central Asian countries. CWG CoPs and Academic Network CoP facilitated students' contribution to the development of three mobile apps: Creating an e-Journal on IWRM for GKU, digitalizing hydrometrical data for the Kazhydromet, and providing mobile access to kzwater.kz for the International Fund for Saving the Aral Sea. Linking these CoPs allowed the young professionals work hand-in-hand with practitioners.

The *Central Asia Youth Forum on Water (CAYFWater)* CoP was established in 2017 in collaboration with the GKU to provide a greater voice to young people. The first meeting of the first CAYFWater members took place in Summer of 2017 in Kyrgyz Republic. The participants explored

the avenues of further development and utilization of the network. National network coordinators were selected for each Central Asian country, including Afghanistan, to improve outreach activities. Currently, the CAYFWater is working on the development of an online platform, which will improve communication between the participants.

The CA Knowledge Network facilitates cooperation in water resource management issues between the World Bank Group and its development partners, such as UNESCO, USAID, UNEP, and OSCE. In 2014 and 2015, the Network partnered with the Regional Environmental Centre for Central Asia (CAREC) and launched a research project competition among Masters students from Central Asia countries. The panel jury received 49 research project proposals, 20 of them were selected as winners and received funding for research. Impressed by the project outcomes, USAID provided 10 million-dollar funding to CAREC to continue CAEWDP Knowledge Network activities focused on Academic Network and Masters students contest.

The CA Knowledge Network built a network which offers advice to its members through in-person and virtual forms of knowledge sharing, facilitates experience exchange, and aids regional cross-sectoral collaboration. The Network helps equip national knowledge institutions with cutting-edge information and skills to build the capacity of Government officials and other professionals in water, energy, agriculture, and climate change-related issues. This activity will continue implementation with a new grant financed under CAEWDP 3.0.

Activity Title
Technical Assistance for Developing Water Information Systems in Central Asia

Activity Status
Completed

CAEWDP Grant Amount
US$478,804

Task Team Leader
Daryl Fields and Nagaraja Rao Harshadeep

The objective of this activity was to provide analytical foundations for the Central Asia Water Resources Management Project (CAWaRM), which aims to strengthen water information management systems by increasing accessibility, reliability, and analytical capacity of water resources information. The activity focused on three scales: National action plans, regional assessment, and global review. The national action plans cover all of the countries in Central Asia. The regional approach was designed to knit and complement country-level approaches to establish an open, coherent and easy to maintain regional water resource information system. The global review took advantage of World Bank lessons from other regions. The tasks under this activity were implemented as complimentary to other national initiatives such as the National Water Resources Management Project in Kyrgyz Republic, the Tajikistan Second Public Employment for Sustainable Agriculture and Water Resources Management Project (PAMP II), the proposed Reimbursable Advisory Services (RAS) in Turkmenistan, and the preparation of the CAWARM Project.

The national assessments were initiated during a technical mission in August to September 2015 within the framework of the CAWaRM project preparation mission. Workshops that convened stakeholders from water-related institutions were organized in Kazakhstan, the Kyrgyz Republic, Tajikistan, and Uzbekistan. In Turkmenistan, based on the structure of water management within the Government, consultations were held with individual ministries. In the activity target country—Tajikistan—the tasks were completed under Second Public Employment Project for Sustainable Agriculture and Water Resource (PAMPII). These efforts led to the development of design parameters of a national Water Information System (WIS). The system is designed based on a comprehensive assessment of data collection, reporting, analysis and incorporates modern information and communication technologies. Similar projects have been completed in the Kyrgyz Republic and Kazakhstan. At the regional scale, the activity worked with the Regional Working Group (RWG) and Regional Steering Committee (RSC), which were established specifically to design and implement CAWaRM. The role of the RWG is to recommend regional investments and defines linkages to national priorities. The RSC is a decision-making body that provides guidance to RWG.

The activity collected data to produce the Global Review of Good Practices—a document that provides information about IWRM tools, capacity building experiences, and technologies. The draft document is currently being converted into an e-learning platform (Spatial Agent), which can be viewed globally and enables access to hundreds of relevant documents.

This activity increased the understanding of the state of water information management systems in Central Asia and identified opportunities to support modernization

in water management systems. Due to difficulties encountered in CAWaRM preparation, the WB decided to restructure the engagement and to pursue WIS establishment through national engagements rather than pursuing a regional project.

Activity Title
Climate Adaptation and Mitigation Program for Aral Sea Basin Series of Projects II

Activity Status
Completed

CAEWDP Grant Amount
US$129,047

Task Team Leader
Philippe Ambrosi

The objective of this activity was to build upon the Climate Adaptation and Mitigation Program for the Aral Sea Basin (CAMP4ASB) investment project and support Kazakhstan's participation in CAMP4ASB through CAMP4ASB SOP II. This activity conducted a preparatory work for the CAMP4ASB SoP II, which enables Kazakhstan, like other CAMP4ASB participating countries, Tajikistan and Uzbekistan, to benefit from enhanced access to climate change data services, new tools, and partnerships with other Central Asian countries. Additionally, the activity worked on preparation of the next phase of CAMP4ASB, which will support the Kyrgyz Republic's and Turkmenistan's participation in the program.

The activity supported the preparation and facilitation of a CAMP4ASB meeting of delegates from Kazakhstan, the Kyrgyz Republic, Tajikistan, Uzbekistan, the Executive Committee of the International Fund for Saving the Aral Sea (EC-IFAS), and the Regional Environmental Center for Central Asia (CAREC) in January, 2016 in Almaty, Kazakhstan. During the meeting, participants reviewed CAMP4ASB's proposed timeline, implementation arrangements, and responsibilities. The CAEWDP team worked with the Kazakh Ministry of Energy and Ministry of Agriculture and developed the CAMP4ASB SOP II to the concept stage. Currently Kazakhstan is interested in undertaking this activity with its own funding resources. This grant contributed to the preparation of a broader TA activity to support Kazakhstan's national efforts.

Activity Title
Central Asia Water Resources Management (CAWaRM) Phase-I Project

Activity Status
Completed

CAEWDP Grant Amount
US$309,494

Task Team Leader
Nagaraja Rao Harshadeep and Daryl Fields

This activity supported the preparation of the CAWaRM Phase-I Project, which aims to improve national and regional water resources information management and analysis systems by increasing their accessibility and reliability at the national and regional scales. The activity supported dialogue with national working groups, the Regional Working Group (RWG), and the Regional Steering Committee (RSC). It also helped draft a World Bank safeguard document and the funding proposal for the current investment project. Additionally, the activity produced an Institutional Primer, an institutional review document that identifies public domain data services that could be used in this and other activities.

At the national scale, this activity facilitated discussions through National Focal Points (NFPs)—representatives who were assigned by the local governments, upon CAEWDP team request, to work with national Technical Working Groups (TWGs) to explore possible national activities to be funded by the CAWaRM Phase II Project. Some of the activities identified included technical modernization, data management, and infrastructure investment activities. Three assigned NFPs—from Kazakhstan, Turkmenistan, and Uzbekistan—signed GEF endorsement letters for the CAWaRM regional grant of US$ 9 million, allowing the CAEWDP team to draft an application for GEF funding.

At regional scale, this activity facilitated discussions through the RWG, which works with NFPs to identify regional activities that can be funded by this project, and through the RSC, which is a decision-making body that provides guidance to the RWG and approves or declines the RWG's recommendations. The first RWG meeting took place in February 2016, with seven participants from four Central Asian countries, and eight representatives from regional organizations. The participants emphasized their strong desire for Tajik participation in the project program development.

Additionally, the activity prepared the Environmental and Social Management Framework (ESMF), a substitute for a World Bank required Environmental and Social Impact Assessment (ESIA) used when it is impossible to identify the number and location of the investment activities. The ESMF was appropriate for this activity due to the pre-appraisal state of the investment project.

During the 2015 to 2017 timeframe, the CAEWDP team undertook several missions to Central Asia. The team visited all five countries with objectives to prepare the set of regional activities, follow-up on the preparation of national work programs, and initiate the financing discussions. Due to difficulties in reaching agreement on a regional implementation partner, it was decided to pursue WIS development at national level rather than through a regional project.

Activity Title
Tajikistan Water Information System Study Tour
Activity Status
Completed
CAEWDP Grant Amount
US$118,820
Task Team Leader
Bobojon Yatimov

The objective of this activity was to sponsor a Water Information System (WIS) study tour—a sub-activity under the WB PAMP II investment project. The knowledge gained upon the completion of this CAEWDP sponsored activity helps the Tajik water experts establish and manage the establishment of a national WIS in Tajikistan.

A scoping study, completed in December 2016 under the PAMP II, provided a comprehensive analysis of the existing institutional and organizational arrangements, technical capabilities, and physical facilities available for monitoring, validation, collection, analysis, transfer, use, and dissemination of hydrological, hydro-meteorological, and water quality data within the newly established Ministry of Energy and Water Resources (MEWR), the Agency for Land Reclamation and Irrigation (ALRI), and other concerned agencies at the national level in Tajikistan. The request for design and establishment of the Water Information Center was negotiated with the MEWR and agreed within the framework of the PAMP II.

CAEWDP funded fourteen water experts from Tajikistan to attend the WIS study tour in Armenia and California, USA. This activity allowed the Tajik experts to learn from the Armenian and American experiences with Water Information and Decision Support Systems. At each location, the experts visited local water management organizations, observed a demonstration of a water resource information systems, had hands-on experience with automated water services in the field, and attended lectures and discussion sessions.

This activity helped the Government of Tajikistan to inform its new National Water Sector Reform Program (NWP) (2016-2025), which aims to introduce IWRM principles in the country. One of the focal points of the NWP is the decentralization of service delivery. In this context, this activity strengthened the capacity of the Tajik water experts in MEWR and ALRI to implement the NWP. Additionally, the activity increased local experts' understanding of the WIS.

WATER PRODUCTIVITY PILLAR

Activity Title
Analysis of Water Supply and Sewerage Services in Central Asia
Activity Status
Completed
CAEWDP Grant Amount
US$243,975
Task Team Leader
Pier Francesco Mantovani

The objective of this activity was to provide a diagnostic of the status and challenges in the water supply and sanitation (WSS) sector in Central Asian countries. This activity examined the WSS sectors, determined the problem areas, and proposed policy reforms towards improved access, quality, efficiency, and sustainability of WSS services.

The activity analyzed the Tajik and Uzbek WSS sectors in three areas: 1) the legal, financial, and institutional perspectives; 2) the sector status and government objectives for the sector; and 3) the available policy options. The first area examined six policy cycle phases: Issue identification, agenda setting, policy preparation, legislation, policy implementation, and policy evaluation. The second area evaluated five WSS objectives: Service quality, efficiency, financial sustainability, equity, and social accountability. Each objective was rated on a scale from 1 (lowest rating) to 5 (highest target rating).

According to the results in the first area, the Government of Uzbekistan (GoU) has recognized the challenges faced in the WSS services sector and approached the issue via the decentralization process; however, there is not a clear strategy for further sector development. Additionally, it was noted that parts of the legal framework were outdated, contradictory, inconsistent, and lacked customer orientation, which usually leads to uncertainties in application. The evaluation of the WSS sector's status showed that the Uzbek WSS sector is below the regional average in terms of service quality, financial sustainability, and social accountability. To address the issues identified during this activity, the study recommended the following reforms: (1) from 2016 to 2021, separately re-examine the social support system and WSS tariff setting; (2) from 2018 to 2023, design regionalization and integrate it into a national master plan; and (3) from 2020 to 2025, strengthen consumer relations.

The analysis of the WSS sector in Tajikistan showed that Tajikistan is aware of the existing WSS issues, but there are institutional and technical resistance to change. The legal framework needs improvements to cover cost-based tariff schemes and client orientation. The sector is missing an overall development strategy and therefore has no clear distribution of responsibilities among institutions. In the evaluation of the WSS sector's status, Tajikistan ranked below the regional average on efficiency, financial sustainability, equity, and social accountability; while service quality ranked above the regional average. To address the existing issues in the WSS sector, the study proposed the following measures: (1) from 2016 to 2021, modernize standards and procurement procedures and build-up tendering capacity; (2) from 2018 to 2023, implement regionalization outside large cities and support solutions for smaller settlements; and (3) from 2020 to 2025, separate the social support system from the WSS tariff scheme, modernize customer relations, introduce technical auditing and evaluate policy results.

This activity generated knowledge on the status of the WSS services in Tajikistan and Uzbekistan. The project findings improved fact-based dialogue and informed decision-making in the WSS sector. Specifically, the results informed decision-making for the GoU in improving the organizational structure of its water utilities. As with Uzbekistan, Tajikistan is also reconsidering its operational and regulatory organizations for WSS services.

ANNEX II – RESULTS FRAMEWORK

This annex contains:

1. Summary of the Program objective and goal progress against outcome indicators

2. Depiction of CAEWDP Results Framework (goal and outcome level) outlining the planned and achieved program goal and development outcomes by 2016[17]

Results indicators were rated as being either achieved (3 out of 5), or partially achieved (2 out of 5) by the close of 2016. The three indicators included: (i) investment / policy options to strengthen stability and predictability of power supply; (ii) investment decisions on national level water/ energy projects that integrated transboundary implications, and (iii) program activities being coordinated and supported through a multi-donor trust fund have been achieved. The indicators supported: (i) the existence of institutional and analytical frameworks for improved water dialogue, and (ii) understanding of regional water productivity being reflected in national plans, policies or investments have been partially achieved. To address the first partially achieved objective, a report on the legal analysis of transboundary water management frameworks was produced. To address the second partially achieved indicator, CAEWDP supported analytical outputs, although it would require additional time for countries to fully institutionalize those lessons into national or regional policies and plans.

TABLE II.1 — CAEWDP RESULTS FRAMEWORK (TRUNCATED VERSION)

GOAL	Indicator
Regional cooperation catalyzes long-term economic growth and livelihood security in Central Asia and provides a catalyst for continued economic growth and increased income.	Indicator: Regional organizations and national bodies have the capacity to support trans-boundary dialogue on regional cooperation.
DEVELOPMENT OBJECTIVE	**Indicator**
Strengthened mutually beneficial regional cooperation enhances energy security and water security.	Three investment or policy options initiated to strengthen stability and predictability of power supply, with at least two options targeted to the Kyrgyz Republic and Tajikistan.
	At least two investment decisions on national level water or energy projects include a clear understanding of their trans-boundary implications.
	Program activities are coordinated and donor supported through a Multi Donor Trust Fund (MDTF).
	Institutional and analytical frameworks for improved water dialogue across Central Asia stakeholders exist.
	Understanding of regional water productivity is reflected in national plans, policies or investments of at least two countries.

Achieved	Partially achieved	Initiated	No Progress	Revision required

17. The Results Framework is adopted from 2016 CAEWDP Annual Report as there was no change in 2017.

TABLE II.2 — CAEWDP RESULTS FRAMEWORK (TOP TWO TIERS)

PROJECT TITLE		Central Asia Energy Water Development Program (CAEWDP)			
GOAL (Impact)	Indicator	Baseline 2010/11	Milestone 1	Milestone 2	Outcome 2017
Regional cooperation catalyzes long-term economic growth and livelihood security to Central Asia and provides a catalyst for continued economic growth and increased income.	Regional organizations and national bodies have capacity to support transboundary dialogue on regional cooperation.	Disparate national level Investments and fragmented regional Cooperation.	Agreement on collaboration with key Regional institutions, supported by Heads of State.	Skills and tools in place to facilitate regional dialogue for cooperation.	CAREC ESCC has supported inter/ intra-regional power trade and included topic in EWP 20162020. EC-IFAS. Has held several transboundary dialogue events on water and water management.

Sources: Communication monitoring reports; Water Sector: DFID, EC, Finland, Germany, Switzerland, UNDP, others; Energy Sector: ADB, Russia, USAID, WB, other; Government Reports, World Bank country CASs, pipeline of investments; Government statistics; Existing institutions mandates and activities.

DEVELOPMENT OBJECTIVE (Outcome)	Indicator	Baseline 2010/11	Milestone 1	Milestone 2	Outcome 2017	Risks
Strengthened mutually Beneficial regional cooperation enhances energy security and water security.	At least three investments or policy options (two of which targeted at Tajikistan and the Kyrgyz Republic) initiated to strengthen stability and predictability of power supplies.	Tajikistan and the Kyrgyz Republic have winter energy deficit.	Needs Assessment completed Identifying priority activities	Winter energy coordination plans in place.	There have been four investments targeted at Tajikistan and the Kyrgyz Republic initiated to strengthen stability and predictability of power supplies improving the situation from 2009/10.	Regional organizations are weak to be able to convene substantive inter-state dialogue on water-energy. There is no dialogue on water and energy.
	At least two investments Decisions on national level water or energy projects include clear understanding of their transboundary implications.	Few current investment decisions on water and energy take into account the transboundary implications.	Potential national and regional energy water investments identified	At least two investments projects selected	Two energy investments take into account transboundary implications for effective use of water and energy resources.	
	Program activities are Coordinated and donor Supported through an MDTF	Active donors in the region, disparate coordination and inefficient	Draft agreement on MDTF and donor coordination based on consultations	Established MDTF with a minimum of two donors contributing.	MDTF fully operational. Program activities are coordinated and donor supported.	
	Sustainable for improved water dialogue across Central Asia stakeholders exists.	No shared institutional and analytical framework exists in the region	Analytical Framework Developed with input From technical specialists of all CA states	Analytical framework agreed at technical level between at least two states; Institutional links on analytics at least between three states are in place	There is regular communication between relevant technical institutes in CA states	

Sources: Communication monitoring reports; Water Sector: DFID, EC, Finland, Germany, Switzerland, UNDP, others; Energy Sector: ADB, Russia, USAID, WB, other; Government Reports, World Bank country CASs, pipeline of investments; Government statistics; Existing institutions mandates and activities.

ANNEX III – RESULTS CHAIN 2017

The result chain below outlines the activities for each of the three program pillars against:
(i) planned outputs. (ii), pre-2017 outputs; and end of 2017 outputs.

Pillar	Components	**Planned outputs (indicators)**	
Energy Development	a) Energy Security in Central Asia Countries: Design and implement measures to alleviate severe winter energy shortages as a base for sustainable energy security b) Intra-Central Asia trade: Enhance energy trading among CA countries by transition to more efficient, market transactions based on well-designed commercial contracts c) Connecting CA to Regional Power Markets: Build the foundation for development of a power market linking Central to other regions	1. National energy plans in at least two countries take into consideration inter- and intra-regional energy trade implications 2. Pre-investment analysis completed for two options for stable and predictable winter power supply in Tajikistan & the Kyrgyz Republic 3. National energy generation institutions considered regional implications of national investments 4. Political and financial support increased for transmission infrastructure planning 5. At least one new investment decision includes inter-/-intra regional implications 6. Strengthened institutional Development (energy trade institutions)	

Pre 2017	2017
1. National energy plans in Tajikistan and the Kyrgyz Republic took into consideration inter- and intraregional energy trade implications (Contributes towards Component b). 2. Pre-investment analysis completed for 30+ options for stable and predictable winter power supply in Kazakhstan, Tajikistan & the Kyrgyz Republic (Contributes towards Component a). 3. Bishkek considered regional implications of national investments (Contributes towards Component b). 4. Tajikistan Energy Sector Action Plan for 2015-2017 and CAREC Energy Sector Coordinating Committee (ESCC) Energy Work Plan (2013-2015) supported increased transmission infrastructure planning (Contributes towards Component c). The Coordination Agreement between Tajikistan and the Kyrgyz Republic Entity was finalized (Contributes towards Component b). 5. One new investment decision, CASA-1000 approved March 2014, included inter regional implications (Contributes towards Component b). 6. Two CAREC Energy Sector Coordination meetings were held, draft of Energy Strategy and Work Plan 2016-2020 was discussed (Contributes towards Component b) 7. Kazakhstan Power Sector: Stuck in Transition: Based on an extensive analysis, detailed interviews, and system modelling, the Note aims to model various sector development scenarios, quantify their costs and benefits, identify key sector challenges, and present recommended policy actions. (Contributes towards Component c). 8. The main objective of the planning exercise is to ensure that peak load and energy demand up to 2030 is met reliably and securely in line with the government's policies at the most efficient cost. (Contributes towards Component b). The main rationale for the study is to inform the government's US$32 billion investment plan in the energy sector which will modernize infrastructure, especially for energy, transport and irrigation, as this is one of the key development priorities for the country. (Contributes towards Component a). Stove Assessment Report: The report provides details on the tasks to be implemented under the TA component "Efficient stoves and heating solutions". (Contributes towards Component a).	1. Energy Vulnerability to Climate Change activity provided the most current climate change projections for Tajikistan, information on climate change impact on the energy sector, and adaptation measures for the country (contributes towards Component a). 2. Three CAREC Energy Sector Coordination meetings: discussed establishing technical group to work on promoting regional electricity trade (Contributes towards Component b) 3. Facilitated implementation of the country-specific Environmental and Social Impact Assessments (ESIAs) for the Kyrgyz Republic and the ESIA for Tajikistan (Contributes towards Component c). 4. Supporting pre-investment studies to enhance winter energy security in Tajikistan resulted in approval of the Nurek Hydropower Rehabilitation Project Phase I investment project. (Contributes towards Component a). 5. Kyrgyz Republic: Heating Efficiency Improvement activity resulted in approval of the Heat Supply Improvement investment project (Contributes towards Component a).

Pillar	Components	Planned outputs (indicators)	
Energy Development			

	Pre 2017	2017
	9. Assistance to Barqi Tajik (BT) on financial management contributed to its implementation of the Financial Management Improvement Program (FMIP) and apply IFRS in the head office and in more than 30 regional branches. (Contributes towards Component b). 10. The main objective of the planning exercise is to ensure that peak load and energy demand up to 2030 is met reliably and securely in line with the government's policies at the most efficient cost. (Contributes towards Component b). 11. 21st CAREC Energy Sector Coordinating Committee (ESCC) Meeting (Islamabad, Pakistan: 11-13 April 2016)-Energy sector focal points of CAREC member countries, officials from energy ministries and agencies, and representatives from multilateral development partners discussed · Updates on the deliverables of the Energy Sector Work Plan (EWP) 2016-2020 and · Next steps to encourage investments in the energy sector. (Contributes towards Component b)	

Pillar	Components	Planned outputs (indicators)	
Energy-Water Linkages	a) Decision support: Strengthen the knowledge base and technical capacity to manage water and energy resources at the national level, and support evidence-based dialogue b) Climate Change: Identify climate change risks and develop adaptation strategies in energy, and agriculture c) Riparian dialogue: Facilitate dialogue across countries to improve coordinated management and development of shared resources, including nurturing regional institutions (ECSS & EC-IFAS) and communities of practice.	1. Expand data management to enhance energy/ water analysis 2. Regional dialogue on at least two priority water & energy issues facilitated by regional and national organizations. 3. Strengthened regional organizations capacity to facilitate regional dialogue 4. Climate change (CC) adaptation implications recognized for both energy and water. 5. Strengthened analytical framework is used to support water/energy dialogue	

Pre 2017	2017
1. Expanded data management to enhance energy/water analysis: • Strengthening Analysis for Integrated Water Resources Management: A Technical Workshop (Ashgabat, November 4-5, 2014) (Contributes towards Component a). • Assessment of the Role of Glaciers in Stream Flow from the Pamir and Tien Shan Mountains (Contributes towards Component b). • Spatial Agent Application for iPhone and Android. The mobile app was demonstrated at a regional workshop to promote innovation and technology in regional water resource management; three mobile apps are being developed to answer to key information needs of the institutions (Contributes towards Component c). • Basin IT Workshop (February 2014) (Contributes towards Component c). 2. Regional dialogue on Rogun Assessments Climate Change, and Energy security and trade were facilitated by regional and national organizations. • Rogun Consultations facilitated by the World Bank (May 2011, November 2012, February 2013, October 2013, and July 2014) (Contributes towards Component c). • United Nations Regional Centre for Preventive Diplomacy for Central Asia cooperation on a framework agreement for sharing trans-boundary waters (Vienna, March 2014) (Contributes towards Component c) • Support to the UNRCCA Trans-Boundary Water Cooperation Process convened a meeting in 2015 to discuss issues related to the interpretation and efficient application of key principles of international law in the management of trans-boundary water resources in the Aral Sea Basin (Contributes towards Component c). • Legal Analysis of the Trans-Boundary Water Management Frameworks in Central Asia A draft report has been produced (Contributes towards Component c) • Central Asia Knowledge Network Four events on trans-boundary water management were hosted in Central Asia; the umbrella Knowledge Network platform has been established and is being institutionalized (Contributes towards Component c). • CAREC ESCC Meetings (2012-2014) (Contributes towards Component a) • 2nd Central Asia Climate Knowledge Forum: Moving towards Regional Climate Resilience (May 2014) (Contributes towards Component c). 3. Strengthened regional organizations capacity to facilitate regional dialogue. • The World Bank and EC-IFAS have agreed to prepare a US$25-75 million project under the Third Aral Sea Basin Plan (Contributes towards Component c). • International Panel of Experts to assist Tajikistan in the Rogun Consultations (Contributes towards Component c) • A regional reconnaissance combined with national consultations facilitated the exchange of information on cutting edge approaches to analysis for IWRM for 231 water resources, irrigation, glacier, groundwater, energy, and environmental national experts (Contributes towards Component a) • Aral DIF Water modeling increased awareness and knowledge in publicly available global data sets (including remote sensing) and modeling platforms as a modern basis of a decision support system for IWRM for 20 technical model and data specialists from all six countries of Central Asia (inclusive of Afghanistan) (Contributes towards Component a) • Basin IT Workshop over a three-day training module was developed by the World Bank Institute based on Basin IT, a water resources management tradeoff analysis training tool, to build capacity for 22 student, young professional participants, and professors from all six countries of Central Asia (inclusive of Afghanistan) (Contributes towards Component a)	1. Established a Central Asia Youth Forum on Water (CAYFWater) CoP in collaboration with the German-Kazakh University (GKU) to provide a greater voice to young people. Facilitated the first meeting of the CoP (Contributes towards Component c). 2. Provided analytical foundations for the Central Asia Water Resources Management Project (CAWaRM) (Contributes towards Component a). 3. Facilitated the Tajikistan Water Information System Study Tour which organized two study tours for Tajik water experts (Contributes towards Component a).

Pillar	Components	Planned outputs (indicators)	
Energy-Water Linkages			

	Pre 2017	2017
	4. Climate change (CC) adaptation implications recognized for both energy and water: • Towards Climate-Smart Solutions for Central Asia Draft (Contributes towards Component b). • Turn Down the Heat: Confronting the New Climate Normal Report (Launched November 2014) (Contributes towards Component b). • Capacity Building Workshop for Regional Scientists in Potsdam facilitated by Potsdam Institute for Climate Impact Research (PIK) (Germany, March 2014) (Contributes towards Component a). • Central Asia Technical Working Group on Climate Change, comprised of government-nominated experts from all Central Asia countries to work collegially on climate-smart solutions across sectors and borders (Contributes towards Component c). • Energy Vulnerability to Climate Change: a draft report is completed (Contributes towards Component b). 5. Capacity Strengthening for IWRM Modeling National Workshop was held with Turkmenistan specialists on a 1-2 year water program at national and regional scales. A five-day training course with professionals from all six Aral Sea Basin countries (including Afghanistan) as well as representatives of the regional water organization (Contributes towards Component a). 6. Capacity Strengthening for IWRM Modeling Final Report and annexes. (Contributes towards Component a). 7. Workshop in June 2016 in Almaty, Kazakhstan to discuss the results of the Knowledge Networks and Communities of Practice for Water-Energy and Climate Change Management Program. (Contributes towards Component c). 8. September 2016, the Water Futures Forum & Expo took place in Almaty, Kazakhstan. Over 200 policy and technical experts from government, academia, private sector, and CSOs participated at this international event. (Contributes towards Component a). 9. CAMP4ASB Regional Meeting in Almaty (Kazakhstan) June 24-28, 2016. The meeting was to review final steps towards effectiveness for the first phase of CAMP4ASB and overall implementation arrangements in collaboration with representatives from the five Central Asian countries as well as from the Executive Committee of International Fund for Saving the Aral Sea (EC-IFAS) and FAO. (Contributes towards Component b)	

Pillar	Components	Planned outputs (indicators)	
Water Productivity	a). Dam safety and rehabilitation: improve dam safety and water management at bulk infrastructure facilities b) Irrigation Efficiency: improve efficiency of irrigation at the national level through prioritization of investments opportunities, strengthening capacities and institutions and introducing new technology c) Water resources diagnostics: Strengthen data and analysis of water resources as a basis for policy development and investments d) **Water supply sector diagnostics**	1. IFAS' capacity in agricultural water management strengthened, and communication between national agricultural water specialists improved 2. Infrastructure and management opportunities (including investments) for increased agricultural water productivity identified 3. National action plans for increasing agricultural water productivity prepared 4. Understanding of regional water productivity is reflected in national plans, policies and/or investments of at least two countries 5. Understanding of water supply sector priorities is improved	

	Pre 2017	2017
	1. IFAS' capacity in agricultural water management strengthened, and communication between national agricultural water specialists improved. • Draft Country Report for Uzbekistan "Social Impact Analysis of Water Supply and Sanitation Services in Central Asia" presenting innovations and factors of success of local management of irrigation and drainage water management (Contributes towards Component d) • Poverty and Social Impact Analysis (PSIA) Diagnostic tool (Contributes towards Component d) • Central Asia Water Management a series of Policy Discussion Papers on Central Asia Water Resources Management, as well as Country Profiles were produced (Contributes towards Component c). 2. Draft Report "The Costs of Irrigation Inefficiency in Tajikistan" (Contributes towards Component b) • Strengthening Irrigation Governance produced a diagnostic tool and an assessment that identified key factors and conditions that are associated with good performance of local irrigation canal water management in Uzbekistan (Contributes towards Component b). • Promoting Irrigation Efficiency, the methodology for planning irrigation efficiency investments was completed and a methodology for determining the costs of irrigation inefficiency at the level of the national economy is in draft. A review of irrigation efficiency in Tajikistan is being finalized (Contributes towards Component b). 3. Social Impact Analysis of Water Supply and Sanitation Services Report was produced (Contributes towards Component d) • Analysis of Water Supply and Sewerage Services in Central Asia Draft Reports on policy recommendations for Tajikistan and Uzbekistan are under preparation, with 2 rounds of consultations in each of the four countries on the preliminary diagnostic and the policy recommendations. 4. Exploratory assessment of factors that influence quality of local irrigation water governance in Uzbekistan published. (Contributes towards Component b) • The Costs of Irrigation Inefficiency in Tajikistan published. (Contributes towards Component b) • Knowledge Sharing workshops conducted on Social Impact Analysis of Water Supply and Sanitation Services in Central Asia in November 2015 in Washington, DC and February 2016 in Tashkent, Uzbekistan. (Contributes towards Component c) 5. Draft Analysis of Water Supply and Sewerage Services in Central Asia: Challenges and Outlook Policy Options Reports – Tajikistan & Uzbekistan completed. (Contributes towards Component d) • Session "Increasing Water Use Efficiency" at the High Level Symposium on SDG 6 and Targets: Ensuring that No One is Left Behind in Access to Water and Sanitation in Dushanbe August 2016. (Contributes towards Component d).	1. Finalized analysis of Water Supply and Sewerage Services in Central Asia. Provided recommendations to address detected issues. (Contributes towards Component d)

http://www.worldbank.org/en/region/eca/brief/caewdp

The Central Asia Energy-Water Development Program (CAEWDP) is a knowledge and technical assistance multi-donor trust fund (MDTF) administered by the World Bank. CAEWDP's mission is to build energy and water security for the countries of Central Asia—Kazakhstan, Kyrgyz Republic, Tajikistan, Turkmenistan, and Uzbekistan—through enhanced regional cooperation. Since its inception in 2010, CAEWDP has received support from bilateral and multilateral donors including the Government of Switzerland's State Secretariat for Economic Affairs (SECO), the European Commission (EC), the United Kingdom's Department for International Development (DFID), the United States Agency for International Development (USAID), and the World Bank Group.

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