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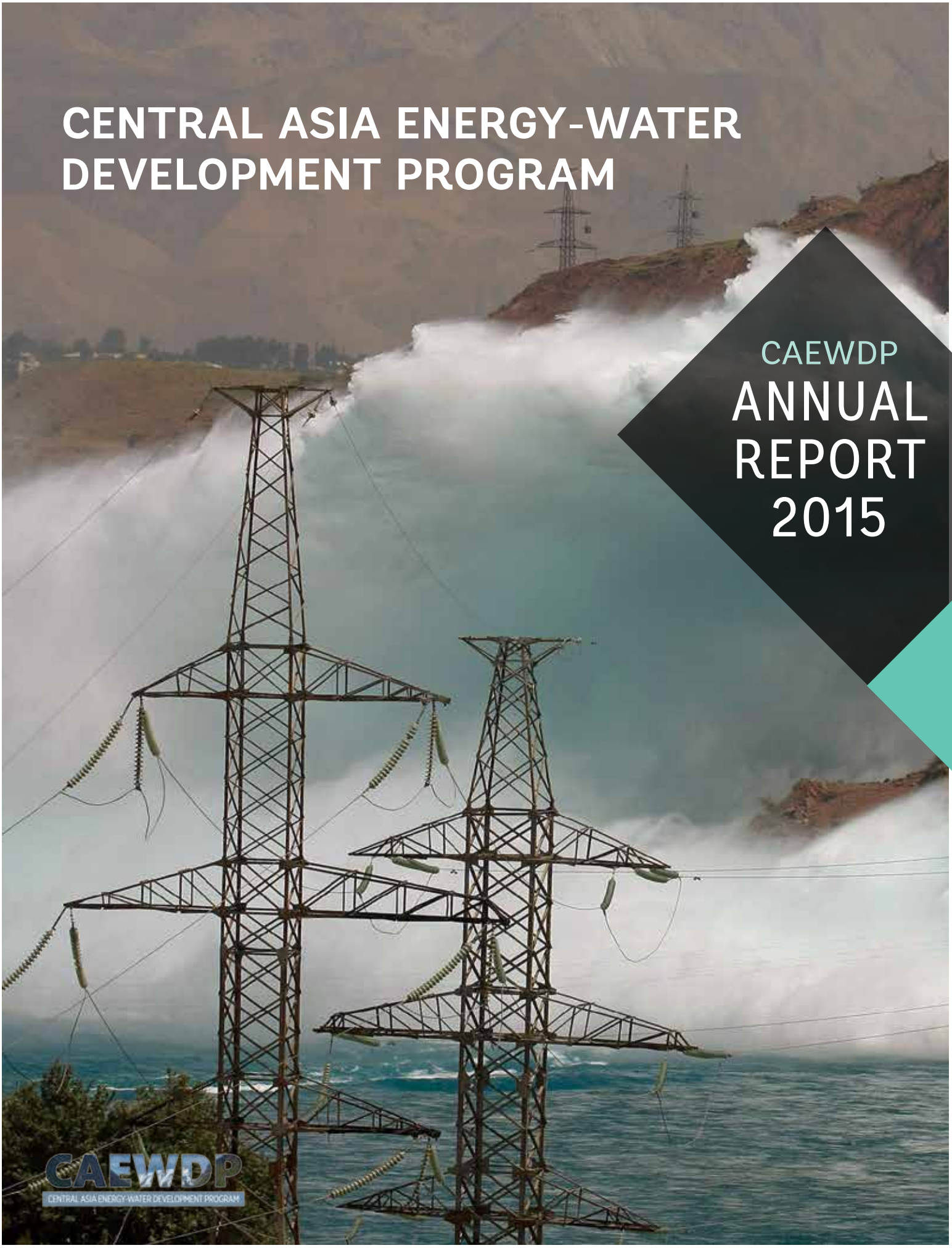
CENTRAL ASIA ENERGY-WATER DEVELOPMENT PROGRAM

CAEWDP

ANNUAL REPORT 2015



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REPORT STRUCTURE

This report presents progress for the Central Asia Water and Energy Development Program (CAEWDP) for 2015. The reporting period for this Annual Report is the calendar year from January to December 2015. The intended audience for this report includes CAEWDP donors, regional stakeholders, the World Bank and any other parties interested in energy and water security in Central Asia.

This report contains six chapters and two annexes. The first chapter highlights the regional energy and water challenges in Central Asia, drawing attention to the threats posed by climate change and the importance of understanding resource interdependencies for regional cooperation. The second chapter introduces the CAEWDP approach to those regional challenges before chapter three reports 2015 updates on the CAEWDP portfolio and an activities summary for each of the three program pillars (Energy Development, Energy-Water Linkages and Water Productivity) and Chapter four reports progress against the program results framework. Chapter five reports on trust fund management and program finances, before Chapter six looks forward to CAEWDP's future role (CAEWDP 3.0). The report contains two annexes: the first provides a summary of all activities in the CAEWDP portfolio and the second presents the program results framework and progress (in the form of a results chain) as at the end of the 2015 calendar year.

ACKNOWLEDGMENTS

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Production of this Annual Report was coordinated by Abena Akuffo-Akoto and prepared by Bradley Hiller (Consultant), Mary Shen (Consultant) and Alexey Nickolaevich Morozov (Consultant). Christina Leb (Program Manager, since October 2016) helped finalize the report and editorial review was provided by Meriem Grey (Communications Officer) and the Europe and Central Asia External Communications team.

PHOTO INFORMATION

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FRONT COVER: Nurek Hydro Power Plant, Asian Development Bank

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ACRONYMS AND ABBREVIATIONS

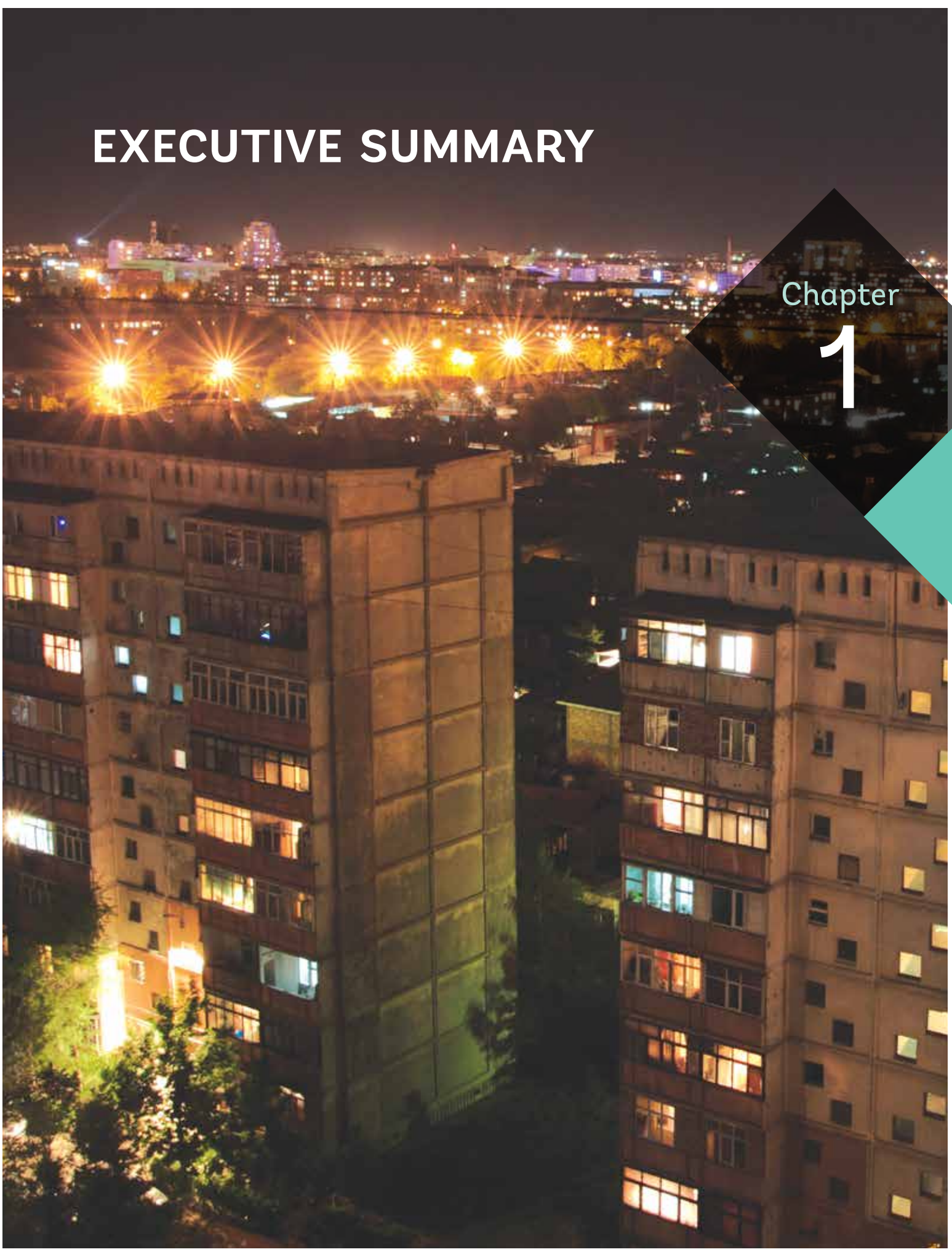
AralDIF	Aral Sea Basin Dynamic Information Framework
NOAA	National Oceanic and Atmospheric Administration
ADB	Asia Development Bank
ASBmm	Aral Sea Basin Management Model
ASBP-3	Third Aral Sea Basin Plan
BEAM	Basin Economic Allocation Model
BT	Barki Tajik
CA	Central Asia
CAEWDP	Central Asia Energy-Water Development Program
CAMP4CA	Climate Adaptation & Mitigation Program for Central Asia
CAREC	Central Asia Regional Economic Cooperation
CASA-1000	Central Asia South Asia Electricity Transmission and Trade Project
CA-WaRM	Central Asia Water Resources Management
CDKN	Climate and Development Knowledge Network
CER	Center for Economic Research
CoP	Community of Practice
CPF	Country Partnership Framework
CSOs	Civil Society Organizations
C4D	Collaboration for Development
DCC	Energy Donor Coordination Committee
DFID	UK Department for International Development
DG DEVCO	Directorate-General for International Cooperation & Development (European Commission)
EAP	Energy Action Plan
EC	European Commission
ECA	Europe and Central Asia
EC-IFAS	Executive Committee of the International Fund for Saving the Aral Sea
ESA	European Space Agency
ESCC	Energy Sector Coordinating Committee
ESW	Economic Sector Work
EU	European Union
EWP	Energy Work Plan
GDP	Gross Domestic Product
GEF	Global Environment Facility
GIZ	German Society for International Cooperation
GoK	Government of Kazakhstan
GoT	Government of Tajikistan
GP	Global Practice
GPSURR	Social, Urban, Rural and Resilience Global Practice
HPP	Hydropower Plant
ICSD	Commission on Sustainable Development
ICT	Information and Communication Technology

ICWC	Interstate Commission on Water Coordination
IDA	International Development Association
IsDB	Islamic Development Bank
ITS	Information Technology Services
IWRM	Integrated Water Resources Management
JICA	Japan International Cooperation Agency
JWG	Joint Working Group
M&E	Monitoring and Evaluation
MDTF	Multi-Donor Trust Fund
MOOC	Massive Online Open Course
MTPP	Medium-Term Priority Projects
NASA	National Aeronautics and Space Administration
NOAA	National Oceanic and Atmospheric Administration
PIU	Project Implementation Unit
PPA	Power Purchase Agreement
QER	Quality Enhancement Review
SDC	Swiss Agency for Development and Cooperation
SDG	Sustainable Development Goals
SECO	State Secretariat for Economic Affairs (Switzerland)
SURR	Social, Urban, Rural and Resilience
TA	Technical Assistance
TF	Trust Fund
ToR	Terms of Reference
TTL	Task Team Leader
TWG	Central Asia Technical Working Group on Climate Change
UNDP	United Nations Development Program
UNECE	United Nations Economic Commission for Europe
UNFCCC	United Nations Framework Convention on Climate Change
UNRCCA	United Nations Regional Centre for Preventive Diplomacy for Central Asia
USAID	United States Agency for International Development
USGS	United States Geological Survey
WB	World Bank
WPO	Web Program Office
WSS	Water Supply and Sanitation
WUA	Water User Association

EXECUTIVE SUMMARY

Chapter

1



Central Asia (CA) was impacted adversely by significant economic shocks during 2015. The region experienced a series of external shocks from late 2014 through 2015, including a sharp drop in commodity prices (particularly for oil and metals), a significant slowdown in major trading partners, (especially Russia), and a loss in competitiveness due to an increase in the value of the U.S. dollar, against which many countries manage their currencies, and a decline in the value of the Russian ruble. At the end of 2015, the region's 2016 growth rate was expected to be around 3.96 percent – the second lowest since independence[1].

This period of recent economic hardship – coupled with fragile poverty gains and a lack of consensus on regional resource management – poses significant challenges for continuing regional development. Recent gains and progress on poverty reduction have slowed down; for example in Uzbekistan national poverty rate declined from 14.1 percent in 2013 to 13.7 percent in 2014 and an estimated 13.6 percent in 2015; in Kazakhstan progress on poverty reduction largely stalled due to slow growth and a weak labor market; the situation is similar in the other Central Asian countries. Progress on poverty reduction in the region remains vulnerable to external shocks. In addition, the harsh climatic conditions and associated higher costs for heating, clothing and shelter pose severe challenges to the regional poor. A lack of consensus among CA states on transboundary water issues contribute to a situation in which recent regional political, socioeconomic and ecological achievements will remain fragile.

Geographical and institutional complexities compound these challenges. Natural resources and the range of services they provide underpin economic growth, poverty reduction and environmental sustainability. For example, water and energy are at the heart of multiple Sustainable Development Goals (SDGs). However, there are both synergies and trade-offs between water, energy use and food production – for example, in CA, the irrigation of crops for food production, particularly for downstream countries, and hydropower energy potential, particularly for upstream countries, presents both challenges and opportunities. Exploring potential synergies and balancing trade-offs is central to ensuring regional water and energy security.

In response, the Central Asia Energy-Water Development Program (CAEWDP) has played – and continues to play – an important role in facilitating national and regional energy-water nexus solutions to promote continued development. The Government of Switzerland and the World Bank formally established CAEWDP as a Trust Fund in 2010. The United Kingdom Department for International Development (DFID), the United States Agency for International Development (USAID), and the European Commission (EC) later joined the program as contributing development partners. The Program is jointly implemented by the World Bank's Water and Energy Global Practices (GP) in close collaboration with the ECA regional department, and supports the CA countries (Kazakhstan, the Kyrgyz Republic, Tajikistan, Turkmenistan and Uzbekistan) to build energy and water security through regional cooperation. Balancing donor support with national and regional objectives, the program's long-term goal is to promote cooperation and integrated energy and water development initiatives to catalyze long-term economic growth and livelihood security within CA. The program activities are structured around three pillars: Energy Development, Water Productivity, and Energy-Water Linkages. Each pillar produces three outcomes: support for diagnostics and analysis, preparation of investments, and the strengthening of national and regional institutions. A central tenet of CAEWDP is that to simultaneously achieve water and energy security, broader influences and cross-sectoral impacts must be brought to the attention of decision-makers.

CAEWDP has demonstrated an ability to provide outputs that contribute to long-term solutions to energy and water security and improved livelihoods. CAEWDP has successfully gained buy-in from all five CA countries. It has also helped to initiate regional cooperation through the national lens of energy and water securities. As examples, CAEWDP has helped to include energy and water linkages components in the 2013-2015 Work Plan of the Energy Sector Coordination Committee (ESCC)[2], as

1. World Bank Europe & Central Asia Economic Update (October 2015) and IMF Regional Economic Outlook Middle East and Central Asia (October 2015).
2. The ESCC is one of four working committees of the CAREC program, an ADB-hosted partnership of ten countries (Afghanistan, Azerbaijan, China, Mongolia, Kazakhstan, Kyrgyz Republic, Pakistan, Tajikistan, Turkmenistan, and Uzbekistan) supported by six multilateral institutions (Asian Development Bank (ADB), Islamic Development Bank (IsDB), Japan International Cooperation Agency (JICA), USAID, United Nations Development Program (UNDP) and the World Bank) working together to promote accelerated growth and poverty reduction through cooperation.

well as the coalescence of the donor community around the CAEWDP-brokered Donor Coordination Council (DCC)[3] Tajikistan Energy Sector Action Plan for 2015-2017. A more detailed summary of 2015 achievements is outlined below.

SUMMARY OF CAEWDP ACCOMPLISHMENTS IN 2015

CAEWDP's portfolio of activities increased during 2015. CAEWDP's cumulative total of national and regional engagements expanded from 32 grants in 2014 to 41 grants in 2015. The grants covered six sectors: Agriculture and Rural Development; Energy; Water Supply and Sanitation (WSS); Water Resource Management; Environment; and Climate Change.

CAEWDP completed a total of ten grant activities during 2015. In addition to CAEWDP growing during 2015, it completed two grant activities in the Energy Development pillar, six grant activities in the Energy-Water Linkages pillar, and two grant activities in the Water Productivity pillar.

CAEWDP continued to play a role in facilitating awareness raising and capacity building activities during 2015 to promote regional water and energy security. However, continued work is required to broker concrete agreements. Through its portfolio of activities, CAEWDP has continued to contribute to the promotion of regional cooperation to catalyze long-term economic growth and livelihood security and to act as a catalyst for continued economic growth and increased income. CAEWDP strengthened the capacity of regional organizations such as ESCC and the United Nations Regional Centre for Preventive Diplomacy for Central Asia (UNRCCA)[4] to convene and facilitate dialogue on trans-boundary issues, which contributes to regional energy and water security. For example, during 2015, UNRCCA organized a meeting on the principles of international law in the management of trans-boundary water resources in the Aral Sea Basin to enhance water security and ESCC organized two meetings on regional power trade.

Given the current political and resource complexities of the region, promoting cooperation requires continued engagement of multiple partners over a sustained period – a role which CAEWDP is helping to facilitate. CAEWDP's role in facilitating continued engagement between key decision makers remains an important factor towards achieving regional energy and water security.

Highlights from CAEWDP's 2015 program are presented below for each of the three pillars: (1) Energy Development; (2) Water Productivity; and (3) Energy-Water Linkages.

ENERGY DEVELOPMENT PILLAR

During 2015, two grant activities were completed in the Energy Development pillar portfolio. Completed projects included one analytical development activity and one institutional strengthening activity.

The two completed activities were focused on heating and energy efficiency of the building sectors in Kyrgyz Republic and Tajikistan; and an energy sector dialogue in Tajikistan. The first activity provided a situational analysis of the two national heating and building sectors, heating improvement options based on market assessments, and finally, investment and policy recommendations for both countries. It helped prompt policy reforms in the Kyrgyz Republic and preparation of a winter energy investment lending project in Tajikistan. The second activity supported Tajikistan's efforts in reducing winter energy shortages and improving performance of the energy sector. Outcomes from this technical assistance activity contributed to improved performance of the energy sector via improved financial management, strengthened coordination and collaboration between development partners.

In addition to completed grant activities, some other notable achievements and ongoing activities contributed to progress in this pillar. The ongoing grant activities in the Energy Development pillar are contributing to both national and regional energy security and comprise chiefly investment preparation activities. Activities range

3. The DCC was established in 2006 and has an overall objective to strengthen aid effectiveness in Tajikistan. It facilitates information exchange and collaboration within the development community, as well as fostering dialogue on shared priorities with the Government of Tajikistan (GoT). It functions as the development partners' coordination mechanism in support of the GoT's National Development Strategy (2008-2015) and the Living Standards Improvement Strategy (2013-2015).
4. The goal of the UNRCCA is to assist and support the governments of Kazakhstan, Kyrgyz Republic, Tajikistan, Turkmenistan and Uzbekistan in building their conflict prevention capacities through enhanced dialogue, confidence building measures and genuine partnership to respond to existing threats and emerging challenges in the Central Asia region.

from specific local winter energy and heating challenges in specific countries (Kyrgyz Republic, Kazakhstan and Tajikistan) to regional energy trade initiatives, such as CASA-1000. Notable achievements during 2015 for ongoing activities included the reaching of commercial agreements for CASA-1000 and multiple ESCC meetings held on regional energy trade and strategy.

WATER PRODUCTIVITY PILLAR

During 2015, two grant activities were completed in the Water Productivity pillar portfolio. Completed projects included two analytical development activities.

The completed activities include a Social Impact Analysis of WSS services in Uzbekistan, and a diagnostic tool and an assessment which identified key factors and conditions that are associated with good performance of local irrigation canal water management in Uzbekistan was completed. The first grant activity promoted consumer engagement and evidence-based approaches in developing WSS policies and plans for equitable access to water supply in Uzbekistan. The activity pioneered the integration of consumer perspectives into decision-making and resulted in the government currently preparing a new WSS strategy. It will also inform World Bank WSS lending in Uzbekistan and the region more broadly. The second completed activity aimed to contribute to better irrigation water management in CA by identifying factors and innovative practices that positively affect performance of local irrigation water management institutions. This activity employed a case study research approach, which proved to be highly successful in identifying key factors and conditions that are associated with good performance of local irrigation canal water management in Uzbekistan. Follow-up discussions with the Regional Water GP Lead are planned to explore operational application of the diagnostic tool.

The ongoing grant activities in the Water Productivity pillar are focused on improving information and diagnostics on water management systems in CA. The three ongoing activities include an irrigation efficiency improvement grant; a water information management system to improve accessibility, reliability and analytical capacity regarding water resources information; and a diagnostic of the status and challenges of water supply and sanitation across CA to outline policy priorities for improved services.

ENERGY-WATER LINKAGES PILLAR

During 2015, six grant activities were completed in the Energy-Water Linkages pillar portfolio. Completed projects included three analytical development activities, two institutional strengthening activities and one investment preparation activity. These included:

1. **Technical assistance to help initiate and strengthen evidence-based dialogue on climate action among key stakeholders.** This grant made a substantial regional contribution towards catalyzing policy and operational dialogue on climate change. Progress was achieved along three dimensions: knowledge deepening; informing strategy and policy; and informing development finance. As part of the activity's outreach and dissemination, a Massive Online Open Course (MOOC) was launched in April 2015, which engaged hundreds of participants from ECA countries. Follow-up activities may include further outreach on climate risks and consensus building on climate action through regional events and/or possible civil society partnerships.

2. **Assessing the baseline conditions of stream flow and glacial extent of the headwaters of the Amu Darya and Syr Darya rivers.** Historical records and analyses of GIS hypsometry and satellite imagery were used to establish information bases to evaluate findings of supply-use and climate change studies in the river basins. The findings will further inform World Bank studies and investments related to climate change and water resources management in CA.

3. **Communicating the key water resource management imperatives in the Amu Darya and Syr Darya riparian countries of CA.** The activity assessed the economic, environmental and social costs of inaction under a business-as-usual scenario including limited regional cooperation among riparian countries, and identified the key drivers for actions addressing water management. Policy discussion papers on CA Water Resources Management, as well as Country Profiles, were prepared.

4. **A grant supported UNRCCA in assisting CA countries to develop a procedure and framework for the management of regional water resources that addresses their trans-boundary challenges through international best practices.** This activity included

the convening of a five-country dialogue to refine a draft template for a procedure which could form the basis of a treaty or convention in the future between the CA countries.

5. **CAEWDP engaged in a riparian dialogue grant activity which aimed to ensure transparent investigative processes, increased knowledge based on rigorous, independent information, and the seeking of alternative strategies to address trans-boundary water and energy issues.** This activity included the promotion of a structured process for consultation and information sharing on the assessment and related studies for the proposed Rogun hydropower project. Overall, the objectives of promoting transparency and ensuring the credibility of the highly contentious Riparian Program for the Rogun Hydropower Assessment Studies, was achieved.

6. **Finally, the Climate Adaptation and Mitigation Program for Central Asia (CAMP4CA) supported strengthening of climate-smart information, institutions, and capacity for cross-sectorial and cross-country planning, investment preparation and implementation to increase regional collaboration in the long-term.** CAMP4CA enhanced regional coordination and access to improved climate change knowledge services for key stakeholders and supported vulnerable communities in implementing climate investments, including support for the Climate Adaptation and Mitigation Program for the Aral Sea Basin (CAMP4ASB).

The ongoing grant activities in the Energy-Water Linkages pillar are contributing to regional knowledge, information and political collaborations. Most ongoing activities are associated with analytical development. Activities range from dialogue, information portals, legal analysis, knowledge networks, computer modeling, and facilitating meetings on topics of regional concern. Many of the grant activities are aimed at promoting improved access to information and increasing capacities on complex regional issues related to energy and water security. Half (three) of the ongoing activities are analytical development grants.

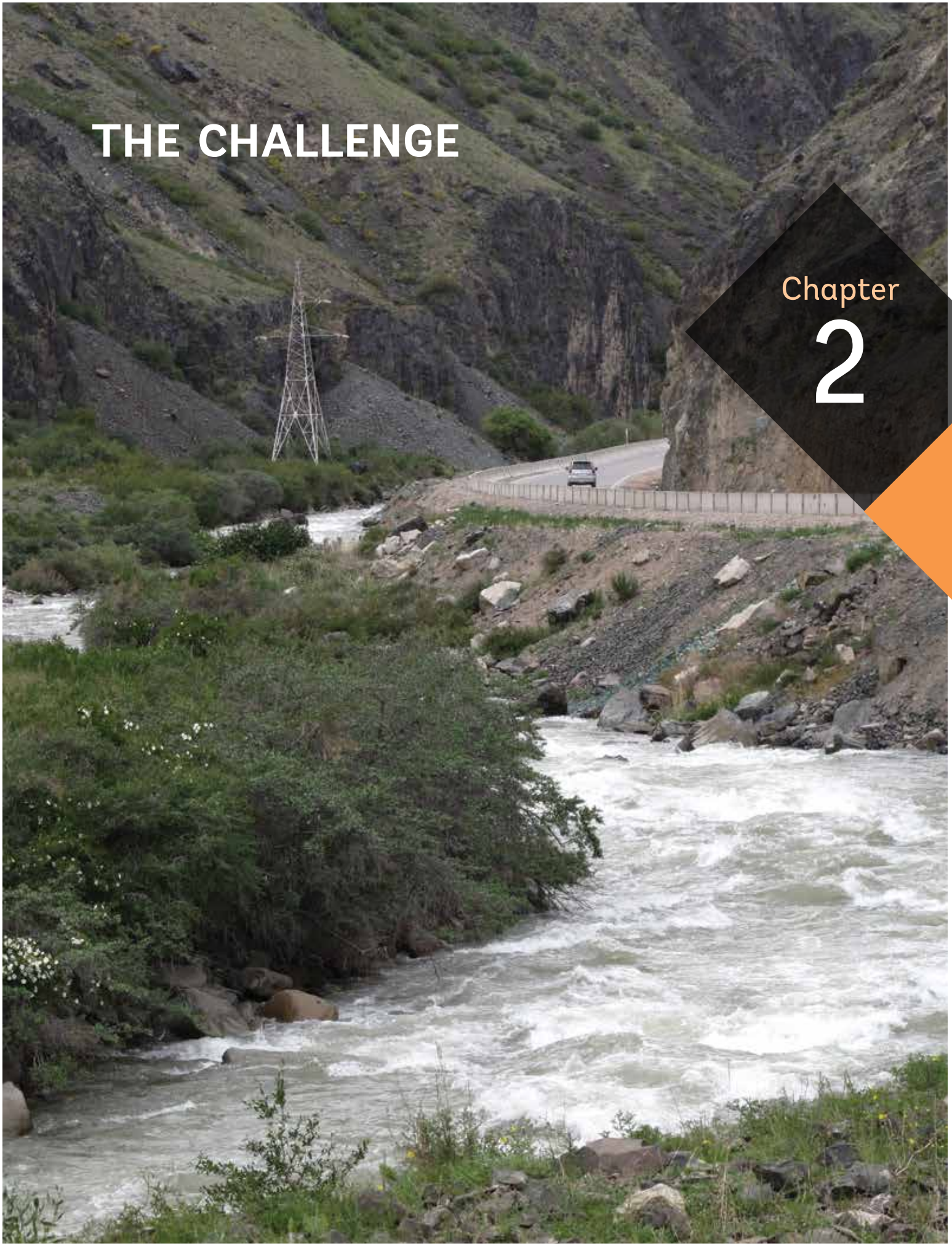
ALLOCATIONS AND DISBURSEMENTS

CAEWDP funding and disbursements also increased during 2015. In 2015, the number of CAEWDP Multi-Donor Trust Fund (MDTF) supported grants increased. Grants totaled US$8.9 million for 41 grants, up from US$6.9 million for 32 grants in 2014. Based on the allocations, the approved activities undertook disbursements in 2015 leading to cumulative disbursements of US$6.2 million, representing 69 percent of total allocations, up from 61 percent in 2014. This increase in disbursement was due in large part to many of the activities that started in 2014, having entered the implementation phase. Among program pillars, Energy-Water Linkages accounted for about 53 percent of program grants, while Energy Development accounted for 29 percent. The remaining grants funded Water Productivity (10 percent) and Strategic Program Management (8 percent).

LOOKING FORWARD

CAEWDP continues to evolve in response to regional demands and emerging opportunities. CAEWDP has evolved substantially over the past years: it started with a small set of diagnostic studies and developed further into a program supporting technical and analytical assistance across water management, energy, climate change, water supply and social accountability. The program has demonstrated an ability to catalyze change; such as shown by the CASA-1000 feasibility studies, Road Map for Strengthening Analysis of Integrated Water Resources Management and the Climate Change Forum. The Program Review activity carried out in 2015 concluded that CAEWDP is highly effective in helping beneficiary countries address energy and water challenges through regional cooperation, and it is essential that the program continues to the next phase to secure long-term solutions to energy and water insecurities.

CAEWDP is transitioning into a third phase (CAEWDP 3.0), which will incorporate the lessons of experience and evolving demands and opportunities. In response to the evolving regional energy and water situations and feedback from the Independent Program Review, a third phase (CAEWDP 3.0) is under preparation. The proposed new phase would differ from the current CAEWDP in four aspects: (i) CAEWDP 3.0 will formally include Afghanistan as a direct beneficiary country; (ii) the pillar structure and content will have an increased focus on energy and water security as the guiding principles of the entire program; (iii) national activities will have an important role as building blocks for regional linkages and energy and water security at the regional level; and (iv) there will be increased emphasis on capacity building for and within institutions and dialogue to catalyze investments.



THE CHALLENGE

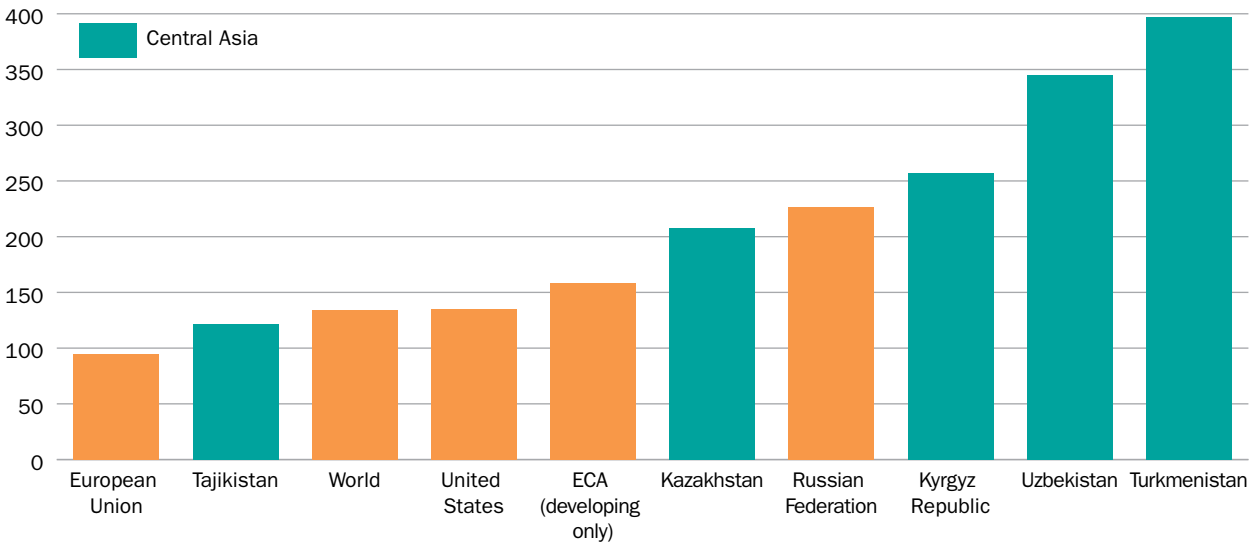
Chapter
2

CA countries are at various stages of development. CAEWDP operates across five CA countries with a total population of 64.5 million. These countries comprise two International Development Association (IDA[5])-only recipients (Kyrgyz Republic and Tajikistan), one blend lower middle-income country (Uzbekistan) and two upper middle-income countries (Kazakhstan and Turkmenistan).

The region is endowed with a wealth of energy and water resources, however distribution among countries is highly uneven. The region relies heavily on a mix of fossil fuel and hydropower resources which are unevenly distributed between its member countries, with major implications for intra-regional coordination and cooperation. Tajikistan and the Kyrgyz Republic, as the upstream countries of the Amu Darya and the Syr Darya river basins enjoy noteworthy hydropower potential. Thermal resources are concentrated in downstream countries of Uzbekistan, Turkmenistan and Kazakhstan.

Many of the current energy and water challenges relate to the region's Soviet legacy, compounded by the different development objectives of the individual states as they move forward. During the Soviet Union period, hydropower infrastructure was designed and built to provide irrigation to downstream countries during summer months, while thermal energy resources for winter heating purposes were imported through a regional power system: the Central Asia Power System (CAPS). After the break-up of the Soviet Union, intra-regional connectivity reduced to 10% of the pre-1990 level, and the region turned into one of the most energy inefficient in the world, both in terms of production and consumption. Energy shortages present an issue for domestic, commercial and industrial users; emerging national aspirations and geopolitical dynamics have reduced incentives for a cooperative regional approach to address energy deficits. Thus, the uneven distribution of water within the region, compounded by a growing population, a highly fragmented institutional system, and the difficulty in attaining consensus over resource management has led to significant losses in economic welfare, periods of water and energy shortages and related tensions, as well as continuous environmental degradation.

FIGURE 1 — CENTRAL ASIA ENERGY INTENSITY, IN A GLOBAL CONTEXT ENERGY USE (KG OF OIL EQUIVALENT) PER $1,000 GDP (CONSTANT 2011 PPP)



Source: World Bank 2012

5. The International Development Association (IDA) is the part of the World Bank that helps the world's poorest countries.

ENERGY

Energy intensity in CA is generally high on both a global and regional scale (Figure 1). In general, the energy sectors in CA states suffer from aging and inefficient power generation and transmission infrastructure. Nearly 80% of the power plants were built before 1980, and both major maintenance activities and investments to increase capacities have been negligible since the 1990s. Consequently, the region is now confronting the effects of decades of neglect and needs significant investments in rehabilitation and installation of new generation capacity.

Further exacerbating the situation is a low level of regional energy trade. Following the breakup of the Soviet Union, the CA countries have switched from prioritizing the optimization of energy production and distribution at the regional level to an emphasis on safeguarding national interests. A stagnant trade environment, coupled with aging infrastructure, uneven distribution of water and energy, underinvestment and low tariffs resulted in 2 million households experiencing winter heat and power shortages; some $1.5 billion in cost savings lost due to a 90 percent reduction in energy trade within the region; and 1 percent in Gross Domestic Product (GDP) lost per year from weather-related disasters in Tajikistan and Kyrgyz Republic.

WATER

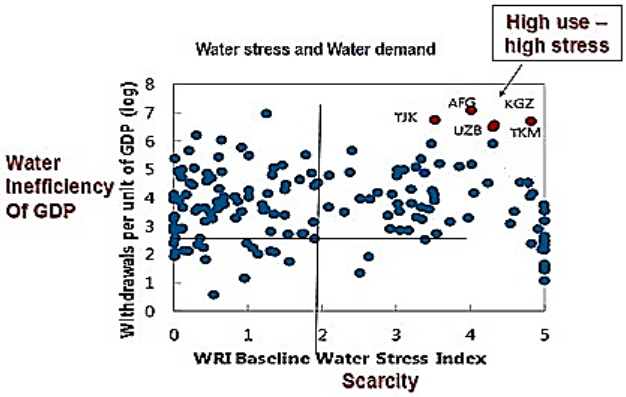
Regional water challenges relate chiefly to availability and efficiency of use. At an international conference in Dushanbe, Tajikistan in 2015, United Nations (UN) Secretary General Ban Ki-Moon stated that “Water is life. Water is health. Water is dignity. Water is a human right”, sentiments which resonate strongly in CA region. The regional water challenges are well known: water resources are limited and with growing demand and growing population, increase of efficiency of water usage on all levels is one of the key goals necessary for sustainable development of the region. The numbers are staggering: currently CA loses some of its 79 percent irrigated water en route.

There are strong competing regional demands for water for agriculture, energy and domestic purposes. The importance of establishing a sustainable link between energy and water is crucial. Currently, generating hydropower in upstream countries to address energy deficits in winter, compromises the water availability for irrigation during summer growing months, contributing to potential water use conflicts. The downstream countries depend on upstream countries for agricultural and domestic water needs. In summer, downstream countries suffer from water scarcity and poor quality, threatening agricultural productivity, along with water salinization and waterlogging. Alongside large existing and potential water storage capacity, the role of hydro resources extends beyond power generation to meet other needs, like drinking water and irrigation.

The dynamic between upstream and downstream states is a major determinant of water resource access and use. Increasing demand and diminishing supplies are coupled by the difficulties the countries of the region are facing in reaching a solution on water distribution and establishing a mutually benefitting control over water resources. Proper allocation of water among different uses and users requires evaluation, choices and tradeoffs but also provides opportunities and synergies. The solution for the efficient water usage between three downstream countries – Kazakhstan, Uzbekistan and Turkmenistan and two upstream countries – Kyrgyz Republic and Tajikistan has not been found yet; the international community has an important role to play in assisting the countries in finding effective ways to address this challenge. The water-to-energy potential is enormous – Tajikistan, for example, produces 94 percent of its capacity out of hydropower, while using only 5 percent of its hydropower potential. Increasing the available potential, if done in full coordination with other CA countries could fundamentally transform the region, creating jobs, boosting income growth and laying a foundation of strong regional partnership for decades ahead.

Aging physical infrastructure also poses a regional challenge to water availability and accessibility. Most water infrastructure across the region has not been rehabilitated since the early 1990s and, despite sporadic upgrades, hydraulic safety concerns remain and significant modernization is required. Water stress is high among CA countries (Figure 2). Looking ahead, population growth, climate change, and the need for increased agricultural production – if not combined with

FIGURE 2 — REGION WATER STRESS, RESULTING FROM LOW EFFICIENCY AND INCREASING SCARCITY



strengthened energy and water resources management – will lead to increased competition over the region's degrading water resources. managing water have both domestic and regional implications for water quality, ecological protection, and water quantity / availability. Irrigation water demand is likely to increase by up to 25 percent by the middle of the century, while water availability could decline by up to 30–40 percent during the same period. At the same time, water management has feedback implications for energy security and system stability through the management of reservoirs and their potential role in ancillary services such as power frequency regulation and reserve capacity.

CLIMATE CHANGE

Climate change is expected to increase pressure on regional hydrological systems. Climate change will manifest itself through continuing changes in temporal and spatial precipitation patterns, increased variability and extreme events, and an overall reduction in available water (over the longer term). Rising temperatures and reducing precipitation in the region may hasten the disappearance of the Southern Aral Sea, while glaciers located in CA face accelerated melting caused by higher temperatures. An increase in extreme conditions and a long-term decline in water resources (after 2050) is likely as glacial melt will diminish over time and regional water sources become limited to precipitation (rain and snow) alone. The CAEWDP-funded CA Technical Working Group on Climate Change (TWG), which includes experts from all five CA countries, identified water and agriculture as the top climate related concerns.

UNDERSTANDING RESOURCE INTERDEPENDENCIES AND PROMOTING REGIONAL COOPERATION

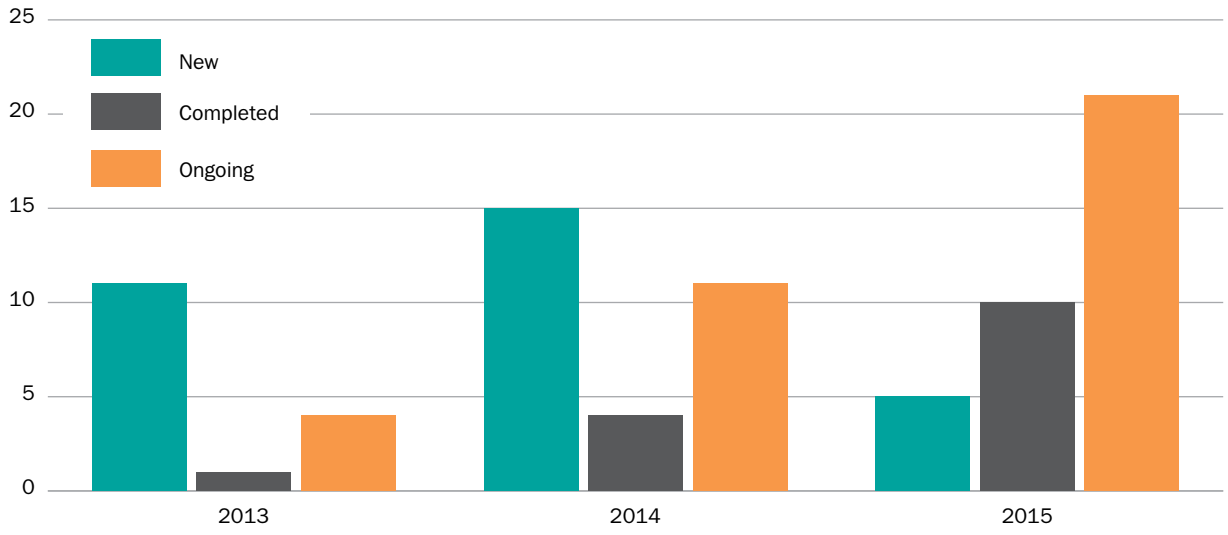
The countries of CA share water and energy resource interdependencies and hence rely on cooperation to address joint challenges. There is opportunity to greatly improve upstream and downstream cooperation. The upstream countries have significant potential for hydropower export, which, if realized, could generate revenues to help finance fuel resources and additional generation capacity, as well as other energy efficiency programs, as a means of dealing with their winter energy crises. However, such upstream demands must be tempered with the summer irrigation needs of downstream countries, where agriculture generates important export revenues and food for household consumption. By upgrading the current irrigation infrastructure, energy savings could be realized and conveyance water losses could be minimized, thereby reducing the demands of downstream countries and easing pressure on the regional resources.

CAEWDP aims to build energy and water security at the national level, enhance cooperation and promote integrated energy and water initiatives at the regional level. The Government of Switzerland and the World Bank established CAEWDP as a trust fund in 2010. DFID, USAID, and the EC later joined the program as contributing development partners. The program supports the CA countries (Kazakhstan, the Kyrgyz Republic, Tajikistan, Turkmenistan, and Uzbekistan) and the World Bank's twin goals to reduce poverty and ensure shared prosperity through long-term economic growth and sustainability. Balancing donor support with national and regional objectives, CAEWDP builds energy and water security at the national level as well as enhances cooperation and promotion of integrated energy and water development initiatives at the regional level.

CAEWDP's long-term goals are to eliminate winter energy shortages, enhance water productivity, and increase electricity trade within and outside the region. Hence, the program is structured around three pillars to reflect these goals. CAEWDP's role in strengthening regional cooperation and leveraging the energy-water nexus is particularly important given the geographic and institutional complexities of CA's energy and water linkages. The three main pillars of the program are:

1. Energy Development: This pillar supports policy and investment decisions for highest value mix of energy resources at the regional level, both within CA and at 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. This pillar's activities also promote better coordination among the development partners working in this region;

FIGURE 3 — NUMBER OF CAEWDP GRANT ACTIVITIES (2013-15)



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

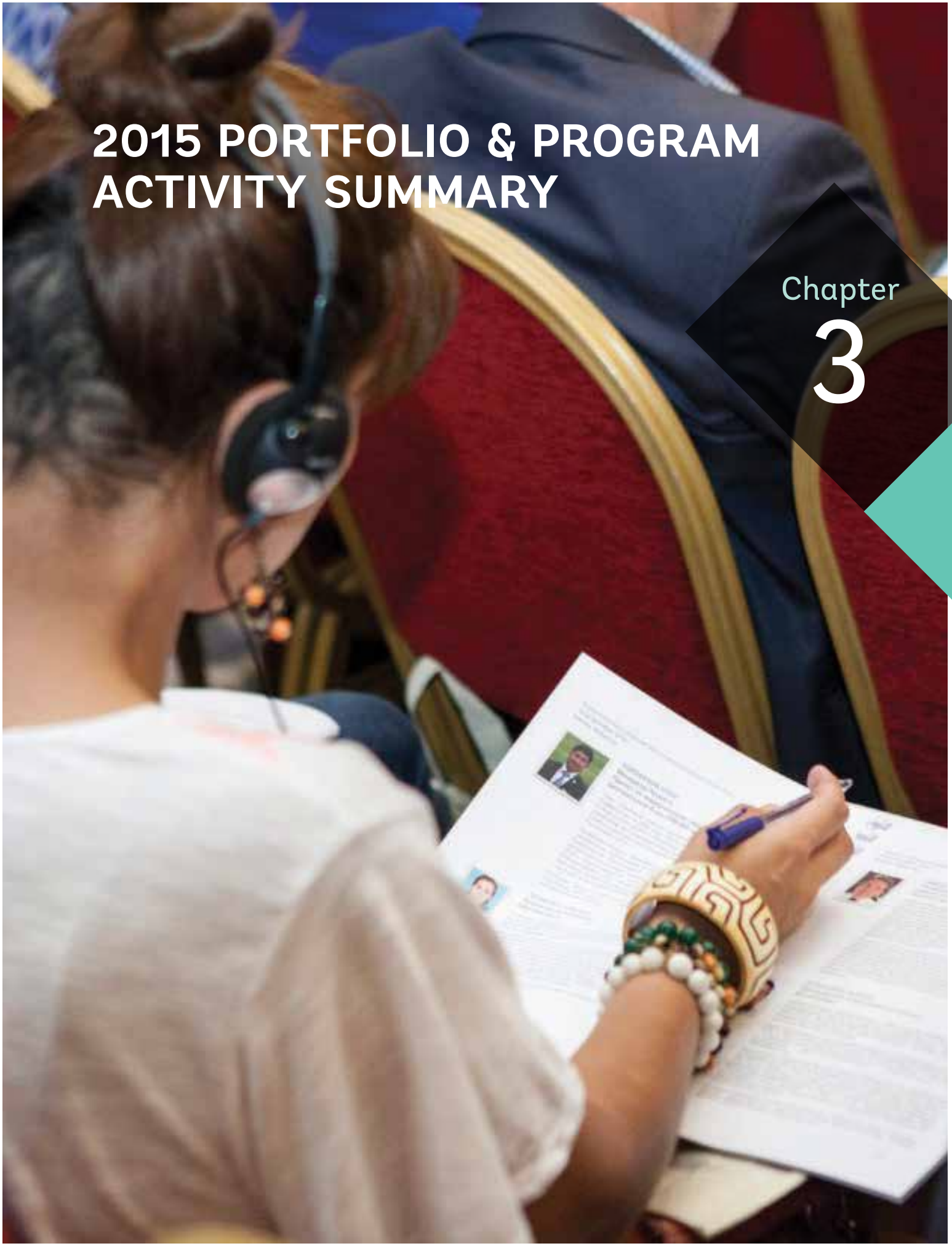
3. **Water Productivity:** This pillar addresses infrastructure and management opportunities to increase the productivity and efficiency of water use in both agriculture and energy sectors.

Each of the program pillars aims to engage in activities based around three key outputs. These are (i) Analytical Development (Technical Assistance): upgrading the knowledge foundation and establishing sound energy-water diagnostics and analytical tools; (ii) Institutional Strengthening: shaping strategies and strengthening national and regional institutions; and (iii) Investment Preparation: identifying priority infrastructure investments. All three outputs are closely intertwined. Analytical development provides the technical foundations and "know-how"; institutional strengthening builds the capacity of agents; and investment preparation helps identify investment options. Combined, these three outputs provide a comprehensive pathway to promote positive investment outcomes.

2015 PORTFOLIO & PROGRAM ACTIVITY SUMMARY

Chapter

3



PORTFOLIO SUMMARY

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 calendar year 2015, CAEWDP completed the greatest number of activities and comprised of the greatest number of ongoing activities so far. Figure 3 shows that during 2015 CAEWDP included 5 new activities, 10 completed activities and 21 ongoing activities. 2015 showed increases in completed and ongoing activities relative to the two previous calendar years.

During 2015, the Energy-Water linkages pillar constituted the largest pillar of the program. In 2015, equal funding was provided to the Energy-Water Linkages and Energy Development pillars, with a lower amount allocated to the Water Productivity pillar. The Energy-Water Linkages pillar accounted for more than half of all program activities (53%). The Water Productivity pillar included a smaller proportion of activities due to the delay in commencement of some planned activities.

In terms of program outputs, institutional strengthening received the greatest program allocation during 2015. Analytical Development comprised just over one third of total program allocation 34%, Institutional Strengthening 38% and Investment Preparation 28%.

A summary of the 2015 portfolio of program activities is provided below for each of the three pillars. A synopsis of each activity and its contribution to broader program goals of achieving regional energy and water security and regional cooperation is provided. More comprehensive project descriptions and updates, as provided by Task Team Leaders (TTLs), are included in Annex I.

ENERGY DEVELOPMENT

CAEWDP's Energy Development pillar aims to analyze and support high-value investments focused on winter energy security, energy efficiency, enhancing trade and accountability, infrastructure planning, and institutional development. 2015 program activities – both ongoing and completed – reflected those objectives. During 2015, analytical products for the Energy Development pillar were largely focused on energy efficiency, while institutional strengthening outputs were focused on the enhancement of regional power market trades and integration. Several new and important initiatives began implementation in 2015, including the winter energy mitigation program for Tajikistan and an assessment of subsidies in the Uzbekistan energy sector and their impact.

During 2015, two grant activities were completed in the Energy Development pillar portfolio. Completed projects included one analytical development activity and one institutional strengthening activity.

One of the completed activities was a heating and energy efficiency assessment of the building sectors in Kyrgyz Republic and Tajikistan. This analytical development activity provided a situational analysis of the two national heating and building sectors, heating improvement options based on market assessments, and finally, investment and policy recommendations for both countries. The activity has helped to prompt policy reforms in the Kyrgyz Republic (particularly related to tariff setting and a performance and reporting framework for the heating sector) and preparation of a winter energy investment lending project in Tajikistan.

Additionally, a Tajikistan energy sector dialogue activity was also completed in 2015. This institutional strengthening activity aimed to support Tajikistan's efforts in reducing winter energy shortages and improving performance of the energy sector. This grant produced three key outcomes, chiefly related to financial management and viability and stakeholder collaboration. Key lessons from this activity included: (i) the need for regular meetings to help build trust and enhance coordination between donors; (ii) the importance of policy support to governments to help improve investment effectiveness and efficiency and donor coordination; and (iii) the involvement of civil society to ensure social responsibility and enhanced participation and communication between stakeholders. Overall, the outcomes from this technical assistance activity contributed to improved performance of the energy sector via improved financial management, strengthened coordination and collaboration between development partners.

Other notable achievements during 2015 included the reaching of commercial agreements for CASA-1000 and multiple ESCC meetings held on regional energy trade and strategy. During 2015, commercial agreements for CASA-1000, including a Master Agreement, Power Purchase Agreements (PPAs), a Coordination Agreement,

Government Guarantees and a Host Country Agreement were reached. Additionally, two Central Asia Regional Economic Cooperation (CAREC) ESCC meetings were held to address CA regional trade and discuss an energy strategy and work plans.

The ongoing grant activities in the Energy Development pillar are contributing to both national and regional energy security and comprise primarily investment preparation activities. Activities range from specific local winter energy and heating challenges in specific countries (Kyrgyz Republic, Kazakhstan and Tajikistan) to regional energy trade initiatives, such as CASA-1000. Some of the grant activities promote better integration of climate change concerns and responsibilities. Four of the six ongoing activities are investment preparation grants.

ENERGY-WATER LINKAGES

CAEWDP's Energy-Water Linkages pillar seeks to improve 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 information base. 2015 program activities – both ongoing and completed – reflected those objectives. Several significant activities were completed during 2015, which provided capacity building for key regional institutions such as UNRCCA and Executive Committee of the International Fund for Saving the Aral Sea (EC-IFAS) to facilitate regional dialogue on trans-boundary waters. Other completed activities included two analytical products focusing on climate change. Efforts

on knowledge sharing and climate change accelerated, marked by three new activities starting in 2015. New and ongoing activities focused on improving national and regional accessibility, reliability and analytical capacity to use water resources information, sustaining momentum in the regional dialogue, and collaboration to improve national and regional resilience to climate change.

During 2015, six grant activities were completed in the Energy-Water Linkages pillar portfolio. Completed projects included three analytical development activities, two institutional strengthening activities and one investment preparation activity.

One of the completed activities was a technical assistance grant to help initiate and strengthen an evidence-based dialogue on climate action among key stakeholders. This grant made a substantial contribution in CA towards catalyzing policy and operational dialogue on climate change. Satisfactory progress towards this objective was achieved along three dimensions: knowledge deepening; informing strategy and policy; and informing development finance. Capacity building activities, such as regional workshops, were held. As part of the activity's outreach and dissemination, a Massive Online Open Course (MOOC) was launched in April 2015, which engaged many participants from ECA countries. Follow-up activities may include further outreach on climate risks and consensus building on climate action through regional event and/or possible civil society partnerships. The grant further contributed to the approval of a regional project addressing climate change adaptation.

Additionally, an activity was completed which assessed the baseline conditions of stream flow and glacial extent of the headwaters of the Amu Darya and Syr Darya rivers. Historical records and analyses of GIS hypsometry and satellite imagery were used to establish information bases to evaluate findings of supply-use and climate change studies in the river basins. Whilst the final report was submitted in late 2014, dissemination and close-out activities were undertaken during 2015. The findings are expected to inform World Bank studies and investments related to climate change and water resources management in CA.

A grant activity on water management focused on communicating the key water resource management imperatives in the Amu Darya and Syr Darya riparian countries of CA. The activity assessed the economic, environmental and social costs of inaction under a business-as-usual scenario including limited regional cooperation among riparian countries, and identified the key drivers for actions addressing water management. A series of Policy Discussion Papers on Central Asia Water Resources Management, as well as Country Profiles, were prepared.

CAEWDP supported the UNRCCA in assisting the CA countries to develop a procedure and framework for the management of water in the region that addresses their trans-boundary challenges through international best practices. An intermediate outcome of this activity was the convening of a five-country dialogue to refine a draft template for a procedure which could form the basis of a treaty or convention in the future between the five CA countries Additionally, the support helped the UNRCCA to make progress on a draft framework agreement for sharing trans-boundary waters in the Aral Sea Basin. Two phases of this activity have been completed.

CAEWDP was engaged in a riparian dialogue grant activity which aimed to ensure transparent investigative processes, increased knowledge based on rigorous, independent information, and the seeking of alternative strategies to address trans-boundary water and energy issues. This activity included the promotion of a structured process for consultation and information sharing on the assessment and related studies for the proposed Rogun hydropower project. This grant activity provided support to international events and financial and technical support for multi-country dialogue activities. Overall, the objective of enhancing the independence and transparency, and ensuring the credibility of the highly contentious Riparian Program for the Rogun Hydropower Assessment Studies, was achieved.

Finally, CAMP4CA aimed to strengthen climate-smart information, institution, and capacity for cross-sectorial and cross-country planning, investment preparation and implementation to increase regional collaboration in the long-term. CAMP4CA enhanced regional coordination and access to improved climate change knowledge services for key stakeholders and supported vulnerable communities in implementing climate investments. This grant also included just-in-time preparation activities for CAMP4ASB, which was approved by the World Bank Board in 2015. The grant supported preparation and delivery of two face-to-face workshops with members of the TWG and other CA Stakeholders. The grant has played a role in strengthening collaboration among CA stakeholders.

The ongoing grant activities in the Energy-Water Linkages pillar are contributing to regional knowledge, information and political collaborations. Most ongoing activities are associated with analytical development. Activities range from dialogue, information portals, knowledge networks, computer modeling, and facilitating meetings on regional issues. Some of the grant activities are aimed at promoting improved access to information and increasing capacities on complex regional issues related to energy and water security. Half (three) of the ongoing activities are analytical development grants.

WATER PRODUCTIVITY PILLAR

The CAEWDP Water Productivity pillar seeks to increase productivity and the efficiency of water use in the water and energy sectors. 2015 program activities – both ongoing and completed – reflected those objectives. In 2015, an analytical product on WSS focusing on irrigation governance was completed. Another analytical product on WSS has made progress, however, the activity experienced some delay due to difficulties during the data collection process. An investment preparation activity focusing on irrigation efficiency is close to completion.

During 2015, two grant activities were completed in the Water Productivity pillar portfolio. Completed projects included two analytical development activities[6].

A Social Impact Analysis of water supply and sanitation services in Uzbekistan was completed. The objective of this grant activity was to promote the engagement of consumers and the use of evidence in developing WSS policies and plans for equitable access to water supply in Uzbekistan. This was to be achieved by: (1) conducting, with relevant stakeholders, an assessment of consumer perceptions and impacts of current WSS service access and quality; and (2) strengthening the capacity of country counterparts in engaging customers and stakeholders. Overall, this Technical Assistance was a breakthrough and has resulted in the government currently preparing a new WSS strategy. Follow-up dissemination activities are planned and findings will be used to inform WSS lending in Uzbekistan and the region more broadly.

Also, a diagnostic tool and an assessment which identified key factors and conditions associated with good performance of local irrigation canal water management in Uzbekistan was completed. The development objective of this grant activity was to contribute to better irrigation water management in CA by identifying factors and innovative practices that positively affect performance of local irrigation water management institutions; (ii) preparing an associated diagnostic tool that will help in the design of program interventions for ongoing or future irrigation operations; and (iii) facilitating exchange of good practice experiences and knowledge of what works among relevant stakeholders across the region. Uzbekistan was identified as a pilot for this grant. This activity employed a case study research approach, which proved to be highly successful in achieving insights into local governance and management arrangements for irrigation. The activity successfully identified key factors and conditions that are associated with good performance of local irrigation canal water management in Uzbekistan and was well received by country stakeholders. Follow-up discussions are planned to explore operational application of the diagnostic tool. Further dissemination workshops and expansion the work to other CA countries are planned.

The ongoing grant activities in the Water Productivity pillar are focused on improving information and diagnostics on water management systems in CA. The three ongoing activities include an irrigation efficiency improvement grant; a water information management system to improve accessibility, reliability and analytical capacity regarding water resources information; and a diagnostic of the status and challenges of water supply and sanitation across CA to outline policy priorities for improved services.

6. No institutional strengthening activities for the Water Productivity pillar were ongoing or completed in 2015.

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 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 Kyrgyz Republic and Tajikistan.
	At least two investment decisions on national level water or energy projects include clear understanding and regional dialogue of their trans-boundary implications.
	Program activities are coordinated and donor supported through a Multi-donor trust fund
	Institutional and analytical framework for improved water dialogue across Central Asia stakeholders exists.
	Understanding of regional water productivity is reflected in national plans, policies or investments of at least two countries..

Partially achieved	Achieved	Initiated	No Progress	Revision required

PROGRESS ON THE RESULTS FRAMEWORK

CAEWDP's Results Framework reports on the overarching program goal and multiple program development objectives. A summary of CAEWDP's Results Framework (Table 1) comprises one indicator for the overarching program goal and five indicators for the program's development objective. Annex II also contains a more detailed version of the program Results Framework.

At the end of 2015, the overarching program goal was rated as being partially achieved. During 2015, the program continued to strengthen the capacity of regional organizations such as ESCC and UNRCCA, and national bodies to convene dialogues on trans-boundary issues (e.g. regional power trade through the provision of experts, training of technical professionals, and production of analytical materials). ESCC convened two meetings, among representatives from the five countries, in which international experiences on regional power trade were shared and attracted considerable interest from the CA countries. UNRCCA also convened two meetings among representatives from the five countries and co-organized a workshop, all of which were dedicated to integrated management of water resources and enhanced regional cooperation in the Aral Sea Basin.

Results indicators were rated as being either achieved (3 out of 5) or partially achieved (2 out of 5) by the close of 2015 (Table 1). The three indicators related to (i) investment / policy options initiated to strengthen stability and predictability of power supply; (ii) investment decisions on national level water / energy projects integrating transboundary implications; and (iii) program activities being coordinated and supported through a multi-donor trust fund have been achieved. The indicators related to (i) 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. For the first partially achieved objective, a draft report on a legal analysis of transboundary water management frameworks is being produced. For the second partially achieved indicator, CAEWDP has supported analytical outputs, however countries have not yet fully integrated those learnings into national or regional policies and plans.

Annex II contains a results chain, which links pillar components with measurable outputs up to the end of 2015. Whilst the Results Framework outlines the overall program goal and development outcomes, the results chain measures the program outputs up until the end of 2015. The results chain links specific outputs as they contribute to pillar indicators.

TRUST FUND MANAGEMENT AND FINANCIAL OVERVIEW

Chapter

4

PROGRAM ADMINISTRATION

CAEWDP objectives remain relevant to the region, the program structure has proven effective and program risks have been adequately managed. By the end of 2015, the Program objective remains valid, and its structure has proved well-suited to capturing the range of relevant activities while providing flexibility to integrate new sectors such as water supply. Risks to the Program are periodically reviewed, as are the ongoing validity of the objectives, results framework, and program structure (i.e., the three pillars and their components).

The end of 2015 saw some senior CAEWDP personnel changes, however, program continuity was maintained. The CAEWDP team underwent a leadership transition at the end of 2015, and will be led by a new Program Manager, Christina Leb, in 2016. The present team is led by an interim Program Manager who additionally serves as a pillar lead, and includes a Partnership Specialist, two pillar leads, and several support functions such as short-term assistance for communications and operations. In 2015, the team continued to provide support in project formulation, implementation, monitoring and evaluation (M&E), as well as facilitating the undertaking of various capacity-building activities for activities in CA.

A mid-term review of CAEWDP was commissioned to reflect on the progress achieved to date and to determine how the program can remain effective moving forward in an ever-dynamic region. A mid-term review was conducted in 2015 to consider progress being made and course correction if necessary. A review team was assembled composed of a Task Team leader and an external consultant to review the current program implementation, results framework, and the originating project trust fund. The results are being gathered and the final report is expected in 2016. The methodology has been agreed with the Donor Advisory Committee and World Bank Steering Committee. An important emerging message is that many interviewees agreed that CAEWDP tackles an important niche in the region; that the regional problems are long term; and the needs are vast and thus CAEWDP should continue into a 3rd Phase. Another finding is that a clearer vision on the transformational change the program wants to achieve will be necessary should the program desire to increase its impact in the region.

DONOR ENGAGEMENT

Donor engagement and commitments remained high during 2015. Donors remain highly engaged in the program. Table 2 highlights donor engagement and commitments, in terms of finances. More than US$10 million had been received as donor contributions by the close of 2015. Further information on program finances is outlined in Section 5.4.

TABLE 2 — DONOR CONTRIBUTIONS & COMMITMENTS

Total contributions received (US$)	Total allocation of funds to grants (US$)	Total disbursements (US$)	Funding available (US$)
10,524,413	8,968,000	6,198,439	559,571

Sourced from program internal financial records, as at 31st December 2015.

2015 was a notable year for donor engagement as the program prepared for consultations on the next phase of CAEWDP. CAEWDP did participate in, and presented at, several partner and collaborator events during 2015.The Donor Advisory Committee meetings that were scheduled for late November were cancelled due to the security situation in Brussels at the time. However, donor consultations were planned for 2016 to be focused on receiving feedback from the partners on the proposed design of the next phase of the program and any additional inputs that would further enhance program design.

COMMUNICATIONS & OUTREACH

In 2015, CAEWDP began implementation of the Communication and Outreach Strategy. The strategy was presented at the November 2014 DAC meeting to support program delivery and to boost impact-focused outreach activities. The purpose of the Communication Outreach and Dissemination activity is to strengthen knowledge sharing and increase key internal and external stakeholders' understanding of CAEWDP through a strategic communications framework. This support will be provided through two components: knowledge management and communications. Efforts will be made to systematize open, transparent

communication and knowledge sharing among stakeholders to continuously engage them. Use of channels will be expanded including promoting analytical reports and tools through media/knowledge platforms and targeted event based strategies.

The Strategy recommended a dedicated communications personnel and adequate funds. Further recommendations and a roadmap focused on the type of channels and platforms through which the program should be engaging its stakeholders. A communications consultant was recruited and a dedicated grant was developed to support the programs activities in this area. There were many successes and firsts in marketing and knowledge activities for CAEWDP. In 2015 the program held its first brown bag lunch to share the results of the 'Social Impact Analysis of Water Supply and Sanitation Services in Central Asia' study and the 'Strengthening Irrigation Governance study'. The program also developed a new logo and updated the website linking to the broader World Bank Water Practice Group. Blogs, briefs, and a new CAEWDP nook helped better showcase the outputs of the program in the region and at headquarters. While the program is proud of these incremental steps, there is still more to be done and 2016 is gearing up to be another year of increased CAEWDP communications and outreach efforts.

FINANCIAL OVERVIEW

A cumulative total of US$8.97 million was allocated to CAEWDP activities by the end of 2015. Among program pillars, Energy-Water Linkages accounts for about 53 percent of program grants, while Energy Development accounts for 29 percent. The remaining grants fund Water Productivity (10 percent) and strategic program management. Overall expenditures (disbursements plus commitment) were 82 percent of CAEWDP Grants, up from 79 percent last year. The proportions of allocations are outlined in Figure 4.

The program disbursement rate increased during 2015. Total disbursements in 2015 represented 69 percent of total allocations, up from 61 percent in 2014. This increase in disbursements was due in large part to many of the activities that started in 2014, having entered the implementation phase.

Cumulative program disbursements continued to increase in 2015, albeit at a slower rate than during 2014 (Figure 5). 2015 continued a trend of significant annual program disbursements triggered in 2014, however program disbursement during the 2015 calendar year was less than 2014 but greater than 2012 and 2013 (Figure 5).

FIGURE 4 — PROPORTION OF TOTAL PROGRAM ALLOCATION PER PILLAR 2015 (%)

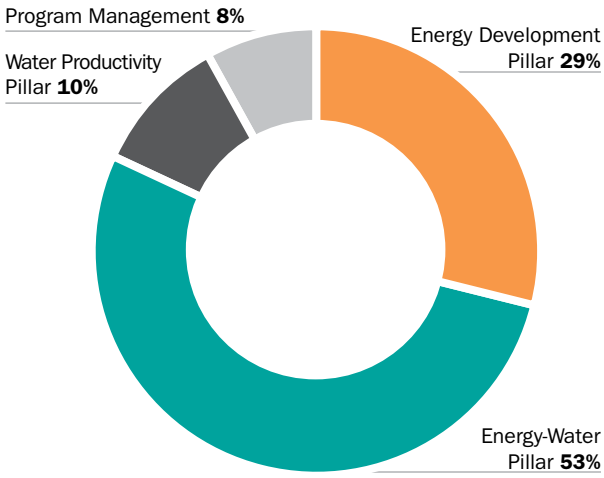


FIGURE 5 — CUMULATIVE PROGRAM DISBURSEMENTS (US$ MILLION, 2012-2015)

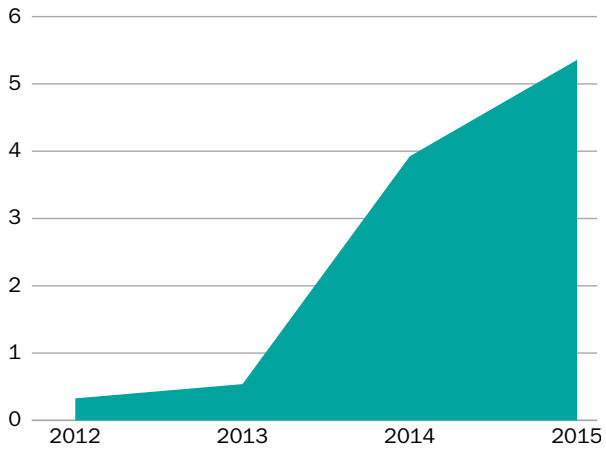
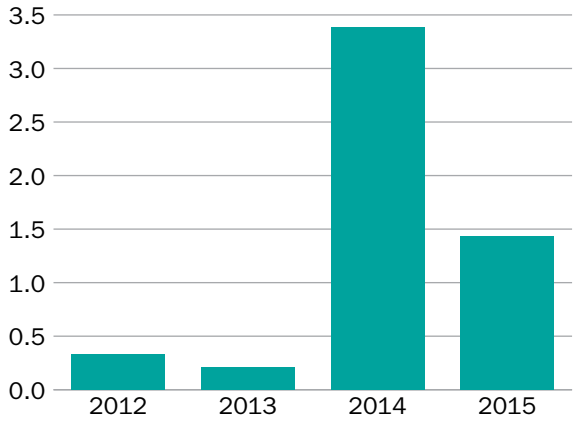


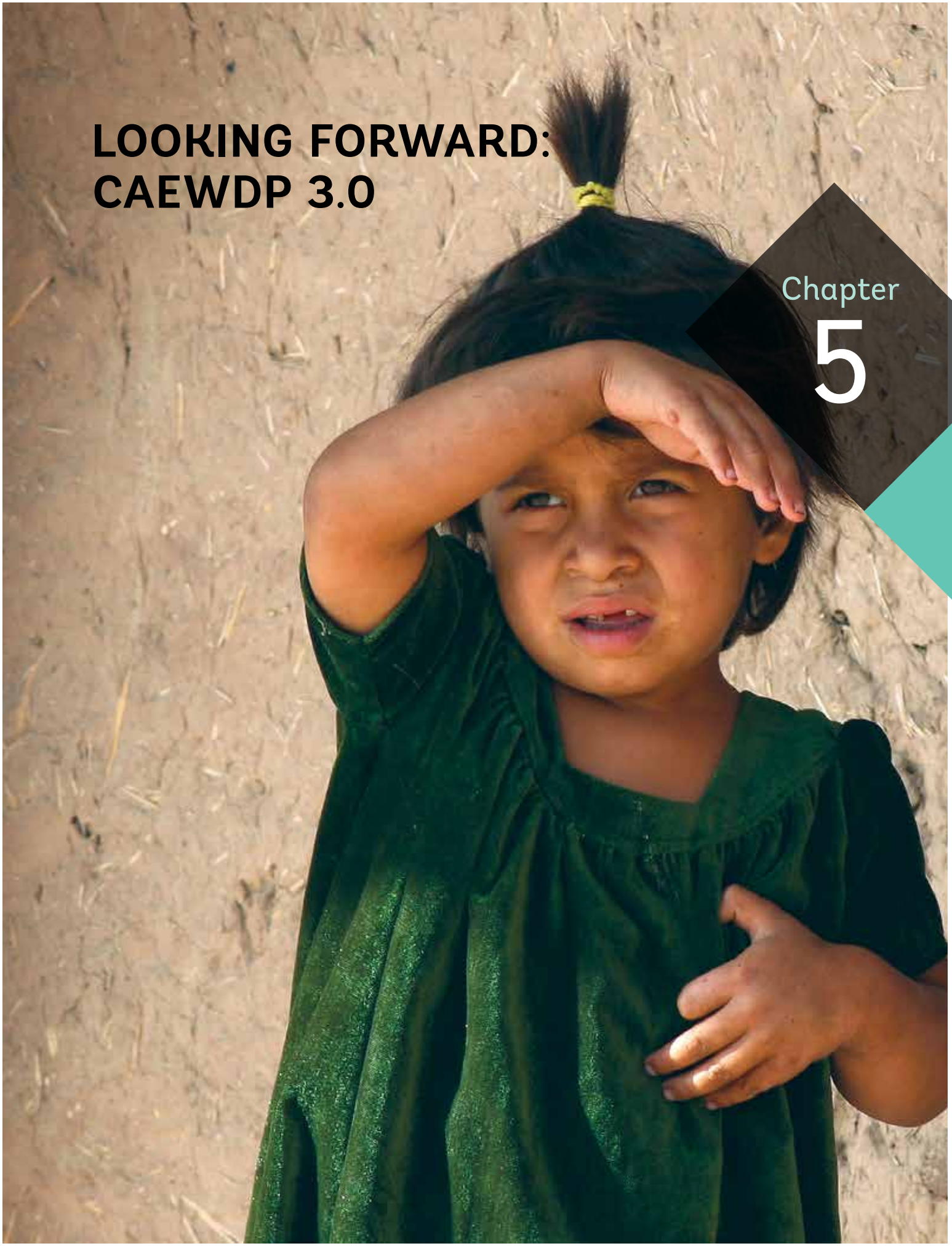
FIGURE 6 — ANNUAL PROGRAM DISBURSEMENTS (US$ MILLIONS, 2012-15, EXCLUDING PROGRAM MANAGEMENT COSTS)



LOOKING FORWARD: CAEWDP 3.0

Chapter

5



CAEWDP has evolved substantially over the past years, from 22 activities in 2013 and 32 activities in 2014, to 41 grants in 2015. The program started with a small set of diagnostic studies and developed further into a program supporting technical and analytical assistance across water management, energy, climate change, water supply and water sector governance. In the short period of CAEWDP's existence, it has achieved important results, including contributing to building an improved knowledge base, demonstrating a good practice example of a regional consultation process (for the Rogun dam), and contributing to and facilitating regional investment projects such as CASA-1000. CAEWDP activities complement the Bank's lending portfolio, such as the South Karakalpakstan Water Resources Management Improvement Project in Uzbekistan that includes technical assistance for joint identification of new operating rules for the Tuyamuyun reservoir by Uzbekistan and Turkmenistan, and leverages partner synergies in the region such as a joint venture with the Swiss Development Cooperation to upgrade the water management data system in the Kyrgyz Republic and irrigation governance in Uzbekistan.

The preliminary results from the Program Review activity concluded that CAEWDP remains relevant and there is strong interest in the continuation of the program. Over 90 percent of the individuals interviewed during the review process highlighted that important progress has been achieved in a very short time frame through adaptive management in the face of a challenging context. In view of the structural design of the next phase of CAEWDP, two important points were highlighted, among others: 1) The objectives of the program and pillars should be refined to better reflect the linkages between outputs, outcomes and goal and theory of change; and that 2) Afghanistan, as co-riparian country in the Aral Sea Basin, should be included in the CAEWDP target countries.

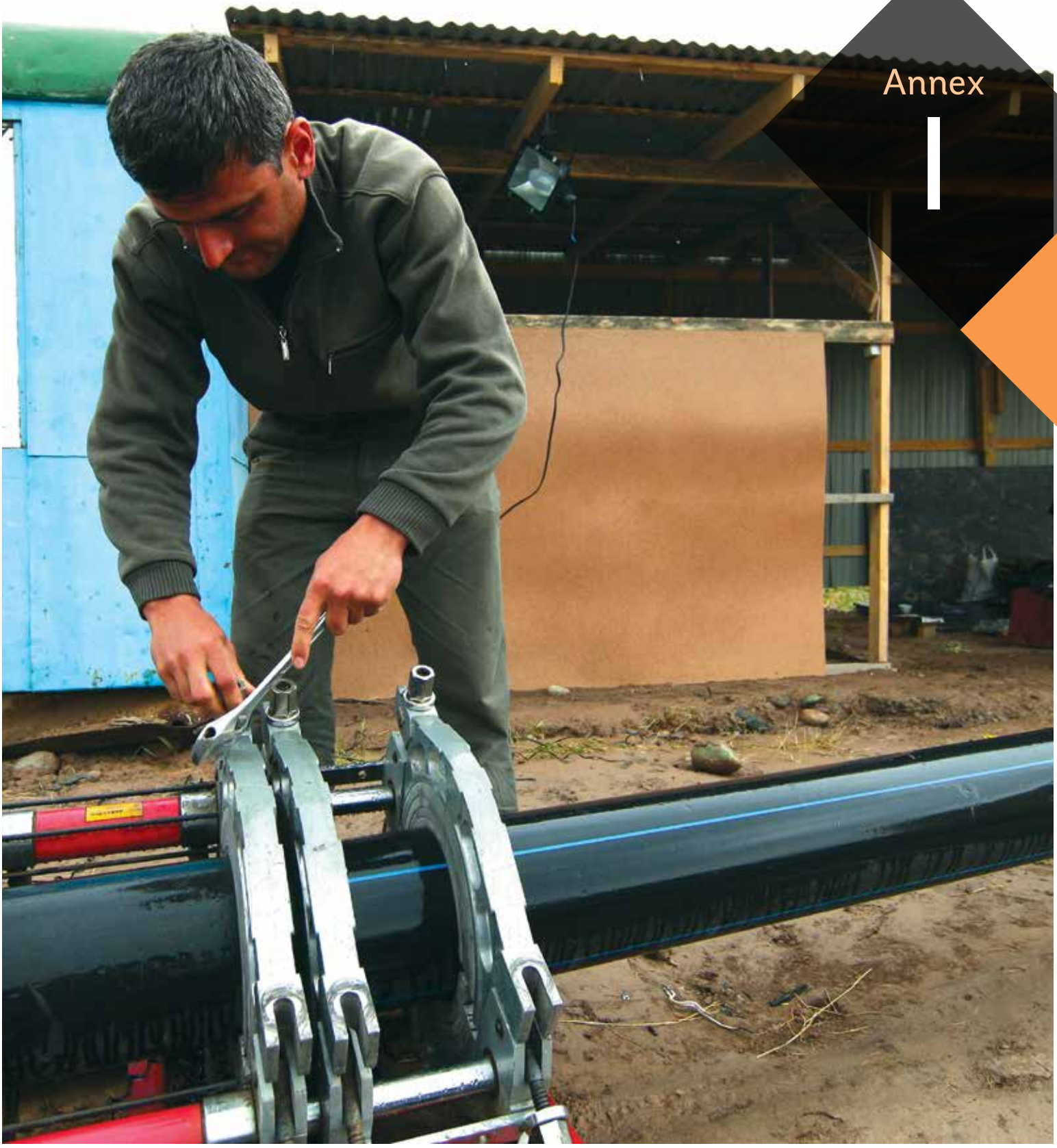
Taking into consideration the results of the Review, the CAEWDP team proposes that the third phase, CAEWDP 3.0, would build on the achievements of the second phase but, in recognition of some of the lessons from experience, would differ from the current CAEWDP in the following four aspects: (i) CAEWDP 3.0 will formally include Afghanistan as a direct beneficiary country; (ii) the pillar structure will have an increased focus on energy and water security as the guiding principles of the entire program; (iii) national activities will have an important role as building blocks for regional linkages and energy and water security at the regional level; (iv) there will be increased emphasis on capacity building for and within institutions and dialogue to catalyze investments. These aspects will be confirmed once the structure of CAEWDP 3.0 is formalized.

CAEWDP will continue to play an important role in addressing CA's energy and water security issues and to contribute to coordinated engagement among development partners in the region.

PROGRAM ACTIVITY DESCRIPTIONS

Annex

I



ENERGY DEVELOPMENT PILLAR

ANALYTICAL DEVELOPMENT

Activity Title	*Kazakhstan Renewable Energy Integration in Power Market and System*
Activity Status	Ongoing
CAEWDP Grant Amount	US$200,000
Task Team Leader	Mirlan Aldayarov

The development objective of this grant is : (i) to support the Government of Kazakhstan (GoK) in developing a vision for effective legal, institutional, and regulatory structure for the wholesale power market, taking into account Kazakhstan's specificities and the need of integrating hydro and renewable energy sources, and (ii) to share lessons from Kazakhstan's considerable competitive power market experience with other CA countries, aiming to facilitate regional electricity trade through their potential participation in Kazakhstan's market and/or the market design replication in these countries.

By the end of 2015, this activity was close to completion. The grant supported the Kazakhstan Power Market Study carried out by a consultancy firm. The study developed recommendations focusing on adjustments to the electricity market rules and the power system requirements to enable integration of renewable sources of energy. Specifically, it includes an analysis of the current state of the electricity market, power system and renewable energy systems; identifies the main shortcomings and challenges they face; and provides recommendations on a longer-term vision of the market structure and on the required changes in the current regulatory system. The workshop to present the draft deliverables took place in June 2015 and the final two draft reports (reintegration into the network and reintegration into the market) have been provided. The report was produced in December 2015.

Activity Title	*Heating and Energy Efficiency Assessment for the Building Sector of the Kyrgyz Republic and Tajikistan*
Activity Status	Completed
CAEWDP Grant Amount	US$181,793
Task Team Leader	Ani Balabanyan

The development objective of this grant activity was to identify viable heating solutions and energy efficiency measures for the urban building sector of the Kyrgyz Republic and Tajikistan that would help the two countries improve their provision of heating services and address winter power shortages.

Overall implementation of this grant activity was rated as satisfactory. Three intermediate outputs were produced: (i) an intermediate report on a situational analysis in the heating and building sectors, including completed and ongoing initiatives and lessons learnt, (ii) an intermediate report including a long list of heating options in each country based on market assessment, and (iii) a final report with investment and policy recommendations. All reports were completed in 2014. In 2015, key stakeholders in Tajikistan and Kyrgyz Republic discussed the reports during an in-country meeting, after which the Bank team finalized and published the reports. In both countries, the recommendations helped to inform and shape follow-up technical assistance and planned investment lending activities on efficient individual heating stoves and district heating.

The results of the heating assessment helped to inform policy reforms in the Kyrgyz Republic, in particular, the development of a transparent tariff setting methodology and a clear performance and reporting framework for the heating sector. At the request of the Ministry of Energy and Industry and based on the results and recommendations of the assessment, the Bank also initiated a follow-up technical assistance activity with the District Heating company in Bishkek to support the development of a detailed investment and implementation plan. This investment plan

will help development partners to have inputs for their investment project in district heating access and efficiency improvement in the Kyrgyz Republic. Moreover, the findings and recommendations of the heating assessment report in Kyrgyz Republic have led to the Bank team currently preparing a winter energy investment lending project in Tajikistan.

INSTITUTIONAL STRENGTHENING

Activity Title	*Tajikistan Energy Sector Dialogue*
Activity Status	Completed
CAEWDP Grant Amount	US$170,000
Task Team Leader	Yuriy Myroshnychenko

The strategic objective of this grant is to support Tajikistan's efforts in reducing winter energy shortages and improving performance of the energy sector. The grant supported three activities which completed in 2015: (i) Assistance to Barki Tajik on financial management; (ii) Participation in the Energy Donor Coordination Committee (DCC); and (iii) Assessment of the energy sector macroeconomic impact and contingent liabilities on the state budget.

This grant produced three key outcomes, chiefly related to financial management and viability and stakeholder collaboration. Specifically, the key outcomes of the grant implementation include: (i) Effective provision of assistance on financial management to the Barki Tajik (BT) and the related activity - Bank funded Energy Loss Reduction Project began to address key financial management issues that prevented the BT auditors to issue an audit opinion in the past years; (ii) The Bank's participation and leadership in Energy DCC enhanced cooperation and collaboration between development partners in the energy sector. The development partners jointly developed the Tajikistan Energy Sector Action Plan for 2015-2017 with inputs from civil society, which solidified the development partners' stance on key policy issues and will serve in policy dialogue in the years to come; and (iii) The grant produced notes on BT's financial situation, which formed a solid analytical basis for policy discussions on BT's financial viability, especially with respect to tariffs.

The main lessons from this activity included:

- Regular meetings of the Energy DCC helped build further trust and enhance coordination between donors
- Support to Government on policy as well as with respect to investments becomes more effective and efficient when donor supported activities are well coordinated
- Involvement of civil society in Energy DCC meeting (in particular the Tajikistan Consumers Union) helped ensure social responsibility and enhanced participation and communication of civil society with energy sector authorities and utility

The outcomes from this TA contributed to improved performance of the energy sector. All key outcomes of this grant activity are very likely to be sustained, including strengthened coordination and collaboration between development partners under Tajikistan Energy DCC, and strengthened government policy to improve financial performance of BT through increases in tariffs, improvements in cash collections and reductions of electricity losses.

Activity Title	*Enhancing Regional Power Trade in Central Asia*
Activity Status	Ongoing
CAEWDP Grant Amount	US$180,000
Task Team Leader	Yuriy Myroshnychenko

This grant aims to explore options for and facilitate discussions on power trade and cooperation between CA countries with the goal of increasing efficiency of their respective power systems, enhancing reliability and security of electricity supply, reducing power shortages, and avoiding GHG emissions. The activity includes two stages: 1) Review of the available analytical materials on CA power trade and, by considering the recent and planned developments of the power systems of the CA countries, preparation of a note/presentation on possible power trade and cooperation options; and 2) Discuss the note/presentation through bilateral meetings with power sector stakeholders of the CA countries with a view to identifying a list of priority measures that are economically attractive and politically acceptable.

At the end of 2015, the grant objective has largely been met. The grant has promoted regional power trade through facilitating dialogues between CA countries and sharing international experience. Specifically, the activity supported sharing of international experience from Northern Europe and Balkans with respect to regional power trade and markets as well as a series of consultations with CA countries and the regional Coordination Dispatch Center. The grant helped engage the technical experts from the countries and identify priority technical issues to be addressed to facilitate enhanced regional power trade. The consultations resulted in the establishment of a list of technical issues that hamper regional power trade. Furthermore, as a follow up of the suggestion of the Kazakhstan delegation at the CAREC ESCC meeting in end-March 2015, as well as to secure high level political agreement between the CA countries to expand regional power trade, a study on unrealized benefits from CA regional power trade for 2010-2014 was commissioned. A meeting with power sector officials from CA countries that took place in mid-May in Almaty resulted in the finalization of the Terms of Reference (ToR) of the study. The advisory consulting firm, AF-Mercados, has commenced the study in July 2015 and will complete it in February 2016. The outcomes of this study will be presented and discussed at the ESCC meeting that will take place in end March/early April 2016.

The duration of the grant has been extended to increase collaboration and the likelihood of positive activity outcomes. The Bank team extended this grant to August 2016 to assist in studying how to enhance Central and South Asia energy trade, with increased collaboration of key donor partners active in the region including the ADB.

INVESTMENT PREPARATION

Activity Title	*Kyrgyz Republic: Heating Efficiency Improvement*
Activity Status	Ongoing
CAEWDP Grant Amount	US$140,000
Task Team Leader	Kathrin Hofer

This grant aims to help address the challenge of providing reliable and affordable heating supply to the Kyrgyz Republic. Reliable and affordable heating supply is critical for the well-being of the population and for sustaining economic activities in the Kyrgyz Republic during the cold winter months. Yet, achieving this objective remains a daunting challenge because of low operational efficiency of the heating infrastructure, low tariffs, lack of metering and norm-based billing practices, decreasing availability and affordability of imported gas, unreliable heating supply and increasing reliance on electric heating. The government recognizes the importance of addressing the above-mentioned key challenges and has initiated several steps to improve the efficiency and reliability of heating supply. Improving the efficiency and reliability of the District Heating (DH) network would not only support the government's long-term strategy in the heating sector and complement the ongoing investments to modernize a combined heat and power (CHP) plant, but also support a strategic shift from meeting heating demand through electricity towards providing more reliable and efficient DH – thus helping to manage the perennial winter energy shortages.

This grant aims at developing a detailed investment and implementation plan and recommending reform measures to improve the efficiency and reliability of the district heating (DH) system in Bishkek. The activity will include the following main components: Component A - Scoping of priority investments to improve the efficiency and reliability of the DH system in Bishkek, including: (1) building-level heat metering; (2) transition to consumption-based billing; (3) replacement/re-insulation of transmission/distribution pipelines; and (4) installation of variable speed pumps/drives. Component B - Policy reforms supporting the implementation of identified priority investments and the transition towards consumption-based billing. In addition, activities may also include targeted dissemination and outreach activities.

During 2015, the Bank team finalized the technical and economic assessment of the district heating system in Bishkek and discussed the results with both the district heating company and the Government. The assessment proposes a prioritized investment plan to improve the efficiency and reliability of the largest district heating system in the country. The responsible district heating company also plans to use the proposed prioritized investment packages to help mobilize additional funding sources in a coordinated manner and to ensure the highest impact per dollar invested.

Activity Title	*Tajikistan Winter Energy Program*
Activity Status	Ongoing
CAEWDP Grant Amount	US$600,000
Task Team Leader	Yuriy Myroshnychenko

The objective of this grant is to support pre-investment studies to enhance winter energy security in Tajikistan. Tajikistan has been facing severe winter energy shortages that badly affected rural households that account for 70 percent of the country's population, which is deprived of formal heating support in severe winters. The grant will cover two areas: i) efficient stoves and heating solutions, with a focus on rural areas and ii) the preparation of the Nurek Hydro Power Plant (HPP) rehabilitation.

This grant targets both a demand-side and supply-side outcome: (i) Efficient stoves and heating policy options initiated to promote efficient stoves for stable and predictable winter power supply in Tajikistan (ii) Nurek HPP Rehabilitation Program that would increase the capacity of the Nurek HPP and enhance dam safety designed and ready for investments.

During 2015, significant progress was achieved towards both outcomes:

- Heating stoves. The team completed the qualitative phase of the stove market assessment and has planned the quantitative phase for the first half of February 2016. By end of April 2016, the team will complete a report that summarizes the outcomes of both phases. In parallel with the stove market assessment, the team will endeavor to develop a few prototypes of efficient stoves for Tajikistan, the need for which was derived from findings from stove testing implemented by the Bank team in early December 2015. The testing revealed that on

average, fuel efficiency of popular stoves installed in Tajik homes is around 30%, compared to 70% and more for modern efficient stoves. The team will present the outcomes of the market assessment and the work on development of stove prototypes to Government, development partners and other stakeholders in May or June 2016. These meetings will also discuss a strategy for implementing a program to replace existing inefficient stoves (about 1 million of them) with more efficient and clean heating stoves.

- **Nurek HPP Rehabilitation.** The preparatory work, including finalization of terms of reference for additional studies, has already started and the studies will be completed in 2016. A Bank team is working on finalizing the on-going studies for rehabilitation and dam safety as well as sedimentation and additional studies. Preparations on the project concept note are underway which will provide the right direction to the team and the advisors to prepare the project. In parallel the team is supporting the Government of Tajikistan on the preparation of the terms of reference for engagement of consultants that will design and supervise the work of the contractors.

Activity Title	*CASA – 1000 Advisory support for countries (RE): Kyrgyz Republic & Tajikistan- Advisory Support for the Regional Trade Initiatives Project*
Activity Status	Ongoing
CAEWDP Grant Amount	US$800,000
Task Team Leader	Sunil Kumar Khosla

The development objective of this grant is to facilitate the preparation of the CASA-1000 project and other possible regional energy trade initiatives for the Kyrgyz Republic. The proposed grant will achieve its objective through the implementation of the following two components: Component 1: Technical Assistance to support the Government and the working groups to advance the CASA-1000 groundwork by financing the technical, commercial, legal, environmental and social and other necessary expertise for the country advisors, and to support other inter- and intra-regional initiatives by financing relevant assessments, studies, consultation with stakeholders and public outreach. Component 2: Covering operating costs for delegates from the Kyrgyz Republic to facilitate the dialogue and development of regional trade initiatives and incremental operating expenses for the project implementing unit (PIU).

In 2015, the grant has resulted in strengthened capacity of the Government of the Kyrgyz Republic and Tajikistan to negotiate commercial and legal agreements under CASA-1000, resulting in prepared commercial agreements for CASA-1000, including Master Agreement, PPAs, Coordination Agreement, Government Guarantee, and Host Country Agreement. Progress has also been made with the bidding and evaluation of several procurement packages, including the most critical Supply & Install of High Voltage DC Converter Stations at Tajikistan, Afghanistan and Pakistan. The grant further resulted in Kyrgyz Republic and Tajikistan representatives attending several meetings of the Intergovernmental Council (IGC) and CASA-1000 Joint Working Group (JWG).

The Kyrgyz Republic activity grant has been increased in budget and duration. An increase from $300,000 to $500,000 has been approved and the activity timeframe extended from 12/31/2015 to 6/30/2016.

Activity Title	*Energy Vulnerability to Climate Change*
Activity Status	Ongoing
CAEWDP Grant Amount	US$100,000
Task Team Leader	Daryl Fields

The overall objective of this grant is to help beneficiary countries in CA understand climate change-induced energy sector vulnerabilities and build resilience through the development of coordinated adaptation policies. The project consolidates a vulnerability assessment of the impacts, risks, and the adaptive capacity of the energy sector. The assessment will help guide decision-makers on options for current and future investments and management of power generation and transmission, and better understand cross-sectorial implications. The grant will lead to two outcomes (i) The Government of Tajikistan equipped with latest projections on climate change, its impacts on the energy sector of Tajikistan and adaptation measures; and (ii) Regional dialogue of energy sector adaptation to climate change facilitated.

At the end of 2015, the assessment study was close to completion. The team presented updates of the study during the 20th CAREC Energy Sector Coordinating Committee (ESCC) meeting which took place in Kuala Lumpur, Malaysia from 7-10 September 2015. A draft report was completed in December 2015. The draft report has three components: 1. Hazard-Impact Models 2. Impact metrics for energy system and 3. Adaptation Analyses.

The preliminary findings of the assessment are:
Hazards:

- Climate change forecasts for temperature show some convergence, unlike precipitation forecasts which disagree considerably.
- Hydrologic impacts are highly uncertain, with little convergence on predictions of magnitude, direction, or timing of change, and with possible differences even within a river basin.

Impacts:

- Overall warming will reduce energy demand in winter and changes in summer demand will depend on uptake of air conditioning and demand for irrigation given changes in hydrology, especially in downstream countries.
- Hydropower investments may either benefit or experience reduced/more variable generation, reflecting the uncertainty in hydrology, furthermore, these impacts may change over time.
- Higher temperatures are likely to marginally reduce efficiency of transmission systems, although extreme events may increase risk of weather outages.
- The frequency of flood events that substantially damage energy infrastructure (generation, transmission and distribution) across the region is likely to increase, especially in wet climate scenarios.

Adaptation with regional benefits:

- Energy efficiency and energy trade reduce climate risk while offering “no regrets” economic benefits at both national and regional scales.
- Climate uncertainty requires a shift in investment and operations management, to integrate a robust decision-making approach that selects investment paths to minimize risks across a full range of climate scenarios.
- Investments in ability to understand and track climate change, and thereby support robust decision-making such as new information technologies and analytical capacities are needed.
- Coordination on small reservoir operations as well as basin-wide water management reduce risks and increase adaptation benefits, and help manage the more volatile and possibly reduced availability of water

The team will present and discuss the outcomes of the study at the next ESCC meeting and finalize the report within one month following the meeting.

ENERGY-WATER LINKAGES PILLAR

ANALYTICAL DEVELOPMENT

Activity Title	*ECA Deep Dive: Leveraging Turn down the Heat III ESW for Europe and Central Asia*
Activity Status	Completed
CAEWDP Grant Amount	US$197,756
Task Team Leader	Philippe Ambrosi

The objective of this technical assistance is to help initiate and strengthen an evidence-based dialogue on climate action among key stakeholders (e.g. policy makers, youth, and media), leveraging the latest scientific analysis provided at sub-regional level (Western Balkans, CA and Russia) under the ‘Turn Down the Heat III’ Economic Sector Work (ESW) activity.

This grant has made a substantial contribution in CA towards catalyzing policy and operational dialogue on climate change. Satisfactory progress towards this objective was achieved along three dimensions:

- **Knowledge Deepened:** The grant helped improve understanding of climate vulnerabilities and options to enhance climate resilience, notably through i)

Background review (e.g., mobilization of sectorial/country experts, both Bank and non-Bank) of CA specific analysis in the 'Turn Down the Heat' report, which provides a synthesis of latest peer-reviewed literature on impacts of climate change on development in several regions including CA; and ii) Preparation of the document 'Towards Climate-Smart Solutions for CA', which focused on proposing no-regret measures in achieving climate resilience at the water-energy-agriculture nexus, drawing on a synthesis of existing work.[7]

- **Strategy and Policy Informed:** Under the background review of the Turn Down the Heat report, early draft of the report and discussions with experts have provided scientific and technical input to the Climate Change Issues Note for Tajikistan, a Knowledge Product to inform the new Country Partnership Framework (CPF) for Tajikistan (FY15-18). The Note contributed to i) developing a narrative linking climate change vulnerabilities in Tajikistan and action areas under the three pillars of the CPF; ii) identification of operations that are helping address climate change; iii) proposing indicators to monitor resilience through the CPF cycle.

- **Development Financing Informed:** Early findings from the Turn Down the Heat report as well as a final draft of Towards Climate-Smart Solutions for Central Asia have been discussed with representatives from client countries at the Second Central Asia Climate Knowledge Forum in May 2014 in Almaty and have informed, along with other scientific and technical input, the design of CAMP4ASB, to expand regional coordination and access to improved climate change knowledge services for key stakeholders (e.g., policy makers, researchers, and civil society) in participating CA countries and support climate-smart investments and capacity building for climate vulnerable communities in these countries. CAMP4ASB covers the five CA countries through IDA, IBRD, and RAS instruments.

Three out of four of the planned outputs were completed as follows:

- 'Towards Climate-Smart Solutions for Central Asia' identified climate-smart adaptation measures that respond to the development needs and priorities of CA countries for key development sectors and increase resilience to climate challenges now and in the future. It was well received at the Second Central Asia Climate Knowledge Forum in Almaty in May 2014[8] and main findings were also presented under the Central Asia Global Knowledge Series, a Brown Bag Lunch series under the Energy GP of the World Bank in June 2014. This document also provides a list of reference documents on climate impacts and adaptation measures in major development sectors for CA countries[9].

- Capacity Building Workshop for Regional Scientists took place during 2014 at the Potsdam Institute for Climate Impact Research. The workshop shared methodological approaches, data sources, and preliminary results from the Turn Down the Heat report with regional scientists and World Bank staff to obtain their feedback and comments, identify additional information that could feed into this analysis, and raise interest for further integrated analyses by regional scientific communities.

- Turn Down the Heat: This grant helped mobilize sectorial/country experts, both Bank and non-Bank, for quality control. The report emphasizes that water resource systems in CA are sensitive to climate variability and change, and climate impacts on water provisioning will reverberate in the agriculture and energy sectors[10]. Outreach and dissemination in CA included a Technical Working Group on Climate Change (~15 members) throughout CAMP4ASB preparation; summary brochures for each of the three ECA sub-regions; and the MOOC was launched in April 2015, with approximately 900 participants from ECA countries.

7. see http://www.worldbank.org/en/events/2014/04/08/second-central-asia-climate-knowledge-forum-moving-towards-regional-climate-resilience#3
8. Ibid.
9. See: http://wbdocs.worldbank.org/wbdocs/drl/objectId/090224b082ed0d96
10. The report, launched on November 24, 2014, in the run up to the UNFCCC Climate Change Conference in Lima (Peru), can be accessed, along with other material (press release, infographics, multimedia, etc.) at www.worldbank.org/en/topic/climatechange/publication/turn-down-the-heat and was also posted on the Central Asia World Bank website.

Main lessons learned from this grant activity include:

- A major process-oriented lesson relates to engagement with counterpart (primarily, experts with government agencies overseeing climate sensitive sectors and scientists), whose keen interest and support was key for the success of the ECA Deep Dive TA. This was possible thanks to high-level support internally, not only in terms of personal commitment (e.g., Bank Management participation in the client engagement/dissemination events for instance or media outreach) but also of provision of adequate resources, including for follow-up tasks. These resources have been key to support interaction with counterparts all along the production of the Report and they appreciated the several opportunities to be associated to the Report's preparation and provide feedback on its scope and messaging.

- In terms of external arrangements, a key instrument in CA was the establishment of a Technical Working Group, with cross-sectoral participation of government-nominated experts to work on climate change, and maintaining close and frequent interaction with this group. The Bank team continues to work with this group for the preparation of the regional climate change program in CA.

This grant activity has been completed, however follow-up activities are outlined. Follow up activities include: a) Finalization of the preparation and implementation support for the CAMP4ASB Series of Projects CAMP4ASB SOP, b) Pursue other opportunities for outreach on climate risks and consensus building on climate action, through participation at regional events or possible partnerships with Civil Society Organizations (e.g., in the context of CAMP4ASB).

Activity Title	*Assessment of the Role of Glaciers in Stream Flow from the Pamir and Tien Shan mountains*
Activity Status	Completed
CAEWDP Grant Amount	US$74,616
Task Team Leader	Winston Yu

The overall development objective of this grant activity was to develop an assessment of baseline conditions of stream flow and glacier extent for the headwater basins of the Amu and Syr Darya rivers from historical records and analyses of GIS hypsometry and satellite imagery. These data were expected to provide the fundamental organized information bases needed to evaluate findings

of supply-use and climate change studies of the Amu and Syr Darya river basins.

This activity contained four interdependent components, focused on generating knowledge and enhancing dialogue in the following areas: (i) energy supply-demand balance; (ii) energy-water linkages; (iii) regional transmission and market regulation; and (iv) water productivity.

This grant activity was completed in 2015. The final report for this activity was submitted in late 2014 and dissemination activities continued in 2015. The ECA water manager and colleagues accept the findings as highly relevant to water resources and climate change studies in CA. The findings will further inform World Bank studies and investments in the region. Dissemination activities focused on sharing the study methodology and findings with World Bank staff.

The activity produced several key learnings, including:

- The bulk of the data traditionally available for the Pamir and Tien Shan mountains or regions are commonly gross aggregate means of climate and hydrology obtained from lowland stations. The final report synthesized the findings and provided estimates for how much water glaciers and season snow from non-glaciated areas contribute to runoff in the Syr and Darya River basins and the extent this contribution might be affected by climate change.

- The activity concluded with a discussion of the implications of the study findings on overall water management in the region, providing the fundamental organized information bases needed to evaluate various climate change scenarios of the Amu and Syr Darya River basins. This would help to prioritize areas of most concern from the water resource management and planning perspectives and potential solutions.

- Also, this study has been an important contribution to the overall discussion of climate change impacts on water and energy in the ECA region.

Activity Title	*Central Asia Water Management*
Activity Status	Completed
CAEWDP Grant Amount	US$523,567
Task Team Leader	Rita E. Cestti

The objective of the grant was to communicate the key water resource management imperatives in the Amu Darya and Syr Darya riparian countries of CA. To do this, the activity assessed the economic, environmental and social costs of inaction under a business-as-usual scenario including limited regional cooperation among riparian countries, and identified the key drivers for actions addressing water management.

Policy Discussion Papers on Central Asia Water Resources Management, as well as Country Profiles, were prepared. In a first phase, the Basin Economic Allocation Model (BEAM) was built upon to analyze the economic incentives for improving water management in the five CA countries located in the Aral Sea basin. Attempts to quantify the physical and economic impacts of various policy and investment decisions in the energy, agriculture, water supply and sanitation, and power sectors under cooperative or non-cooperative water management frameworks however did not yield reliable results. The first phase report which assessed the current practices and future business-as-usual and action scenarios of key water sectors based on BEAM was reviewed in two Quality Enhancement Review (QER) Meetings, one held in late 2014 the other in January 2015. After careful review of the analytical tool, the decision was made to use the technical insight of the report and the review to produce a series of Policy Discussion Papers on Central Asia Water Resources Management as well as Country Profiles.

Activity Title	*Central Asia Water and Energy Portal*
Activity Status	Ongoing
CAEWDP Grant Amount	US$300,000
Task Team Leader	Nagaraja Rao Harshadeep

Portals can offer access to databases of information related to water and energy, however there is currently no such resource available at the regional scale. A fundamental impediment to regional integration related to energy and water in the CA region is that there is currently no easily accessible knowledge base to visualize and analyze the region in an integrated manner. At regional level, several attempts have been made on portals / databases related to the region, but the quality and access to public-domain information is still very limited.

The development objective of this grant is to improve public-domain online access to water and energy related spatial information. Key intermediate outcomes targeted include:

- An online portal for accessing spatial information related to water and energy aspects in CA.
- A platform to integrate global and local multi-sector data
- An innovative interactive mobile App for access to key features of this portal
- Improved awareness on CA Water and Energy spatial context for development and cooperation
- Knowledge products to promote access to and use of such public domain data in CA

During 2015, the grant activity made substantial progress in developing public domain online portal and improving portal use and scaling-up. The new mobile app, "Spatial Agent" is a simple but extremely powerful data visualization app, which can visualize a range of public-domain spatial multi-sectorial datasets through interactive maps and charts. This app was demonstrated at a regional workshop to promote innovation and technology in regional water resource management. The app and the demonstration have prompted the identification and use of public domain datasets in CA and inspired even more public data access through such kind of apps.

This grant has also promoted open data for another CAEWDP-funded activity, the Central Asia Water Resources Management (CA-WARM) project. The CA-WARM project has a strong focus on regional and national activities relating to information sharing, use, and modernization of associated water resources and hydrometeorology agencies. Students from CA and Afghanistan (IT and Water specialists), main water institutions (Hydromet, Regional Center of hydrology and the EC-IFAS branch in Kazakhstan) and IT experts have been working on three mobile apps responding to key information needs of the institutions. This has contributed to the sustainability of the work, since it invited students from different countries to study institutions from other countries for the opportunity to interact with professionals in the field.

Activity Title	*Capacity Strengthening for IWRM Modeling*
Activity Status	Ongoing
CAEWDP Grant Amount	US$385,000
Task Team Leader	Daryl Fields

The development objective of this grant activity is to strengthen knowledge and modeling skills leading to a more effective base on which to identify modeling architecture options and priorities for integrated water resources modeling in CA. This activity is demand-driven based on messages conveyed during the national dialogues and the 6-country July 2012 IWRM Forum demonstrating that there is a demand from the region to build/adapt their own model instead of having another model superimposed on them from the outside.

The activity aims to achieve outcomes of strengthened capacity and increased knowledge, awareness and confidence around IWRM modelling. The grant contributes to creating a more level playing field, for a more transparent dialogue across the six countries, mitigating one of the recognized risks to trans-boundary water cooperation - capacity and knowledge gaps. This activity helps knowledge and skill expansion, training and studies which meet gaps in capacity and knowledge, and support developing new skills.

The activity contains three components, of which two were progressed during 2015. This activity comprises: Component 1: National Consultations; Component 2: Capacity strengthening through technical knowledge exchange; and Component 3: 2nd Central Asia IWRM Knowledge Forum (as a follow up to the 2012 IWRM Forum). In 2015, progress has been made on the first two components. A National Workshop was held with

Turkmen specialists, accompanied by consultations with government officials on a 1-2 year water program at national and regional scales. A diverse set of professionals from all six Aral Sea Basin countries (including Afghanistan), as well as representatives of the regional water organization, participated in a five-day training course. The training tested a curriculum developed by a region-wide model advisory group, which is to be included in a long-term regional project. The participants valued the use of three models of the Aral Sea Basin for hands-on learning, and commented on the opportunity to become aware of these tools, as well as the experiences of their regional colleagues. Participants were interested in continuing the interactions as a community of practice. As a side event, a meeting was held with the women participants to discuss possible avenues for gender-focused training and support in water analytics. This grant has also strengthened capacity to build national confidence and ownership. It allows transparency in model operations and promotes increased trust among countries. Long-term investment in capacity building should continue in order to allow for opportunities in the political economy of water management.

Activity Title	*Legal Analysis of the Trans-Boundary Water Management Frameworks in Central Asia*
Activity Status	Ongoing
CAEWDP Grant Amount	US$70,000
Task Team Leader	Victor Bundi Mosoti

The objective of this grant is to contribute to a better understanding of the legal instruments regulating the use of the Amu Darya and Syr Darya Rivers. Different riparian countries have expressed their views on the interpretation and application of legal instruments regulating the use of the Amu Darya and Syr Darya Rivers. This activity was created to provide a legal analysis of the regulatory framework for trans-boundary water management, including the rights and obligations of each riparian under the relevant instrument (e.g. the 1995 Nukus Declaration, the 1987 Protocol 566).

This activity achieved significant progress during 2015 and is nearing completion. A draft report for this activity has been produced. The report provides detailed analysis of the various legal instruments as well as the analysis of the "boundary conditions" and their basis in the legal instruments analyzed previously. The report has enhanced understanding of the regulatory frameworks for trans-boundary water management of CA with emphasis on their nature, legal standing, level of compliance and regional perceptions.

INSTITUTIONAL STRENGTHENING

Activity Title	*United Nations Regional Centre for Preventive Diplomacy for Central Asia (UNRCCA) Cooperation*[11]
Activity Status	Phase I: Completed; Phase II: Completed
CAEWDP Grant Amount	US$143,939
Task Team Leader	Daryl Fields

The objective of this grant is to support the UNRCCA's programmatic activities aimed at assisting CA countries in developing a procedure and framework for the management of water in the region that addresses their trans-boundary challenges through international best practices. International practice suggests that an ideal procedure would be characterized by its commitment to facilitating cooperation in good faith, ensuring equitable and reasonable results, preventing significant harm providing transparency, being neutral and impartial, being objective and focused on the facts; guaranteeing an outcome in a timely manner, and being adaptable. International law and best practices suggest that an idealized effective procedure would include the following eight steps: notification; scoping; information gathering; negotiation; mediation; dispute resolution; monitoring and compliance. These formed the basis of the dialogue CAEWDP supported. The intermediate outcome was to convene a five-country dialogue to refine a draft template for a Procedure which could form the basis of a treaty or convention in the future between the five CA countries.

11. This activity description represents two successive grants: the first from 2/2014 to 9/2014 and the second from 4/2015 TO 8/2015, worth US$97,410 and US$46,540, respectively

The grant's objective has been fully met and both Phase 1 and Phase 2 have been completed. The grant provided effective and timely logistical and technical support to UNRCCA which helped to ensure participation of UNRCCA's consultants in the meetings The UNRCCA convened a senior level meeting in Vienna on March 6-7, 2014, and a second meeting on 29-30 April 2015. During the meeting in Vienna in 2014, participants discussed the problems of the interpretation and effective application of the basic principles of international law on the management of trans-boundary water resources and agreed to continue discussions. Participants included representatives of ministries and agencies of CA states, EC-IFAS, the World Bank, relevant UN structures, as well as international experts. The grant provided effective and timely assistance with logistics. The 2015 meeting was a follow up to the meeting in the same format held in 2014 in Vienna. Both meetings saw senior officials of Kazakhstan, Kyrgyz Republic, Tajikistan, Turkmenistan and Uzbekistan as well as representatives of EC-IFAS, World Bank and relevant UN structures, as well as international experts.

Additionally, UNRCCA made progress on a draft framework agreement on sharing trans-boundary waters in the Aral Sea Basin. The outcome of this engagement is to articulate optional mechanisms for trans-boundary water management through a five-country dialogue to improve understanding of options for dispute resolution as part of the legal framework based on norms and principles of international law.

Activity Title	*Central Asia Regional Economic Program (CAREC Engagement)*[12]
Activity Status	Phase I: Completed; Phase II: Ongoing
CAEWDP Grant Amount	US$277, 314
Task Team Leader	Yuriy Myroshnychenko, Daryl Fields

The CAREC ESCC—co-chaired by the ADB and the World Bank—is a key regional platform to engage CA countries in energy issues. The ESCC oversees implementation of an energy action plan and specific analytical and capacity-building initiatives through its committee and subcommittee meetings. It provides a unique platform to convene energy experts and decision-makers of CAREC countries to discuss and explore options to strengthen regional trade and is instrumental in implementing CAREC's energy strategy.

The development objectives of this grant are: (i) To enhance energy sector dialogue among CA countries and (ii) To ensure coordination of donor assistance to the energy sector in CA countries through participation in the Energy Sector Coordinating Committee (ESCC) meetings, senior officials' meetings and ministerial conferences of CAREC.

At the end of 2015, the development objective for this activity was largely achieved. The grant has continued to enhance cooperation and dialogue on power sector issues among CA countries. The World Bank energy team delivered presentations at the 19th CAREC ESCC meetings on March 30-31, 2015 in Ulaanbaatar, Mongolia, and on September 7, 2015 in Kuala Lumpur, Malaysia. The country delegations showed great interest to the international experience on regional power trade. For instance, a joint presentation by the Kazakh delegation and the Bank team on regional power trade at the ESCC meeting in Ulaanbaatar triggered an active discussion and concluded with a request to the Bank to conduct a study on benefits from CA regional power trade. On the 20th ESCC meeting, CAEWDP reported on the progress of the different segments of the CASA-1000 project as well as updates on the 'Energy Vulnerability to Climate Change' study. The meeting also discussed updates on the deliverables of the Energy Work Plan (EWP) 2013-2015 and the current draft of the Energy Strategy and Work Plan 2016-2020.

The draft new Work Plan 2016-2020 continues to include multiple CAEWDP activities:

- Developing the Central Asia—South Asia Energy Corridor: This component will continue the work started under the 2013-2015 EWP. Several cross-border energy infrastructure projects are currently under implementation in the CAREC region.
- Promoting Regional Electricity Trade and Harmonization: As a continuation of work began under the 2013 to 2015 EWP, a study will be carried out to evaluate the current condition of the power market models, pricing rules, and tariff

12. This activity description represents two successive grants: the first from 2010 to 2013 and the second from 2013 to 2016, worth US$57,314 and US$220,000, respectively

regulation mechanisms, analyze existing power sector agreements among the CA countries, and examine international best practice for establishing power markets. A working group on regional market arrangements to support the regional power trade study will also be arranged.

- **Managing Energy-Water Linkages:** The Energy Vulnerability to Climate Change study will provide guidance for decision-makers on options for investments in and management of power generation, transmission, and distribution assets. Discussions will also continue on the possibility of establishing a working group to deal with water resource management issues.

- **Capacity Development and Knowledge Management:** the ESCC will also work to strengthen cooperation with other energy entities such as Energy Charter, International Energy Agency, International Hydropower Association, etc., especially on improving capacity building and knowledge management events for CAREC countries.

Next steps include preparation of and participation in the next CAREC ESCC meeting scheduled for end-March/early April 2016.

Activity Title	*CAEWDP Riparian Dialogue*
Activity Status	Completed
CAEWDP Grant Amount	US$594,104
Task Team Leader	Daryl Fields

The strategic objectives of this grant are to ensure a transparent study process, increase knowledge based on rigorous, independent information, and seek possible strategies to address trans-boundary implications. In addition, the grant seeks to demonstrate alternative approaches to energy and water dialogue. Substantially completed in 2014, this grant covered the following specific activities: (a) World Bank funded studies to augment those studies managed by the Government of Tajikistan; (b) Establishment of two Panels of Experts to review the technical rigor and results of the assessment studies, participate in decisions related to study progress and report their views to interested partners; (c) Riparian dialogue among all CA countries and Afghanistan through a structured process for consultation and information sharing on the assessment and related studies for the proposed Rogun hydropower project; (d) World Bank note on the Rogun Assessment Studies and issues for further consideration.

During 2015, this grant activity provided support to international events and financial and technical support for multi-country dialogue. The program provided support to EC-IFAS in two international events to promote implementation of the Third Aral Sea Basin Management Plan. In addition, the program also provided financial and technical support to the UNRCCA for all-country dialogue on a cooperative framework agreement for trans-boundary water management.

This grant activity successfully completed and met the objective by enhancing the independence and transparency, and ensuring the credibility of the highly contentious Riparian Program for the Rogun Hydropower Assessment Studies. Through a series of five riparian meetings, online and in-country outreach, as well as coordinated communications, the Rogun riparian program facilitated a transparent study process, improving stakeholder dialogue and presenting a model for discussions on regional water and energy resource management. The process engaged an independent Panel of Experts in the study review as well as the consultation process. The process stimulated a subsequent meeting of first Deputy Prime Ministers to discuss water management. The outcomes of the riparian consultations and information-sharing program included: (i) more extensive stakeholder involvement and public dialogue; (ii) improved quality of knowledge base for the studies; (iii) strengthened client capacity; (iv) demonstration of a process for regional resource management discussions based on international good practices; and (v) moderated political rhetoric and misinformation.

Activity Title	*Central Asia Knowledge Network*
Activity Status	Ongoing
CAEWDP Grant Amount	US$300,000
Task Team Leader	Julia Komagaeva

The development objective of this grant activity is to foster cooperation and knowledge exchange among local and regional institutions and practitioners in the areas of water resource management, energy and climate change in the CA region. The grant aims to establish a regional network of knowledge institutions and communities of practice (CoPs) of technical specialists.

The World Bank Institute (WBI) and CAEWDP jointly developed this comprehensive integrated knowledge and capacity building program. The Knowledge Network (KN) provides advice to its members through different forms of knowledge sharing, exchange of experience, collaboration and outreach. The Network helps equip national knowledge institutions with cutting-edge curriculum, knowledge and skills to build the capacity of Government officials and other professionals in water, energy, agriculture, and climate change-related issues.

In 2015, the grant made satisfactory progress towards achieving its objective. Activities in 2015 included:

- The umbrella Knowledge network platform (Central Asia Knowledge Alliance for Development - CAsKADe) has been established, with a few CoPs created and to become active in the Collaboration for Development (C4D) platform.
- As part of the Academic CoP development, a regional student competition has been initiated.
- The activities of the champion CoP on Trans-boundary Water monitoring and disaster early warning in Kazakhstan have been supported, aiming to expand this CoP work to other CA countries.
- The regional coordinator for the knowledge network has been identified and hired to start institutionalizing the knowledge platform.

In addition, five important knowledge and exchange of experience events were hosted:

- In March 2015, the first workshop of the pilot project "Creation of water apps in the field of integrated water resource management", led by the Kazakh-German University and the World Bank took place. The event allowed the sharing of experiences in the water-related data and water information management and accessibility.

- In May 2015, the Kazakh-German University and the EC-IFAS Directorate of Kazakhstan hosted a "Youth Water Day-Water Enterprises" event, which included a contest in which students presented innovative and entrepreneurial ideas to further develop the water sector.

- In June 2015, the Inter-Sectorial Working group, a voluntary professional community of practice coordinated by the Regional Centre of Hydrology, met to discuss upgrading monitoring techniques and systems for flood protection on the Syr Darya.

- In September 2015, in collaboration with the Kazakh-German University and the Ministry of Foreign Affairs of Kazakhstan, a "Young Civil Servants event on trans-boundary water management" was convened to increase awareness of water issues.

- In November 2015, the "Second Meeting of the Pilot Project for developing water resources mobile application" was convened. The Pilot project aims at developing the multi-disciplinary and multi-sectorial aspects in water resources management involving students from the region specialized in water resources and information technology, key institutions involved in water resources management, and the private sector.

INVESTMENT PREPARATION

Activity Title	*Climate Adaptation & Mitigation Program for Central Asia (CAMP4CA)*
Activity Status	Completed
CAEWDP Grant Amount	US$149,860
Task Team Leader	Angela G. Armstrong

The objective of this grant is to strengthen climate-smart information, institution, and capacity for cross-sectorial and cross-country planning, investment preparation and implementation to increase regional collaboration in the long-term. The grant supported just in time preparation activities of the proposed CAMP4ASB investment project, expanding the dialogue platform initiated by the 'Central Asia Climate Knowledge Forum'[13] grant, for regular meetings and technical exchanges on climate related issues, laying a foundation which would build better understanding and confidence, and allow countries to aspire to more collaborative actions on climate. This grant was especially needed following the results of the CA Technical Working Group's[14] work on climate change. Their results indicated that the countries are facing similar sectorial challenges where resilience must be strengthened (e.g., agriculture, water, energy, health, forestry, and biodiversity) as well as gaps for addressing these challenges (e.g., knowledge and capacity, lack of an enabling regulatory framework, and access to finance and technology). These commonalities lend themselves well to a systematic and integrated approach at the regional scale, with higher gains than unilateral interventions at the national level.

CAMP4CA enhanced regional coordination and access to improved climate change knowledge services for key stakeholders and supported vulnerable communities in implementing climate investments. Those living in poverty are most affected by the risks of climate change, as they tend to depend more directly on vulnerable land and water resources. The adoption of climate-smart strategies, such as adoption of sustainable land management strategies for agro-ecosystems, will impact

13. This CAEWDP grant was completed in 2014. For more details about this activity please see the 2014 Annual Report at http://documents.worldbank.org/curated/en/2015/10/25119348/central-asia-energy-water-development-program-progress-report-2014
14. The Central Asia technical Working Group is a group of technical experts nominated by the governments of the five CA countries to work across borders and sectors on climate-smart solutions.

farmers and communities and help address current threats to agricultural production and rural livelihoods, stemming from climate risks such as droughts and weather extremes, and better adapt and become more resilient to climate change to not only restore productive natural resources, but also to improve livelihoods and food security.

The grant has played a role in strengthening collaboration among CA stakeholders, with multiple face-to-face events in which Climate Adaptation and Mitigation Program stakeholders discussed and reviewed program design and implementation arrangements. Grant-supported activities helped countries advance preparation of the investment project, defining needed inputs for the project's regional information platform for climate assessment and decision-making, as well as equipment needs to support targeted upgrading of climate-related monitoring systems. In addition, grant-supported regional collaboration events have helped define climate-smart investments to be financed under the Program, resulting in the appraisal of the Program in April 2015 and the Board approval in November 2015. The CAMP4ASB SOP II project, a $45m, 6-year project involving Tajikistan, Uzbekistan and the Executive Committee of the International Fund for Saving the Aral Sea.

The grant supported preparation and delivery of two face-to-face workshops with members of the CA Technical Working Group on Climate Change (TWG) and other CA Stakeholders. The first meeting took place in Almaty, Kazakhstan on November 13-14, 2014. The workshop engaged project counterparts to discuss and reach agreement on CAMP4ASB SOP II's scope and activities, monitoring indicators, and institutional arrangements. During this workshop, consensus was reached that CAMP4ASB SOP II will support climate change resilience in planning and investments, with attention given to water and energy savings (e.g., on-farm water management and off-grid renewable energy for rural communities). In addition, TWG members participating in the workshop could review with Bank specialists and gain a better understanding of World Bank requirements covering financial management, procurement, and environmental and social safeguards, together with approaches to incorporate gender and citizen engagement considerations in the Program. A second workshop took place in early 2015.

Activity Title	*Central Asia Water Resources Management (CA-WARM) Phase-I Project*
Activity Status	Ongoing
CAEWDP Grant Amount	US$250,000
Task Team Leader	Nagaraja Rao Harshadeep

This grant aims to support the preparation of the Central Asia Water Resources Management Project - Phase I, the overall objective of which is to improve national and regional accessibility, reliability and analytical capacity to use water resources information for improved water resources planning, monitoring, and management. Specifically, the grant will support preparation, and appraisal of the proposed Central Asia Water Resources Management (CA-WARM) Phase I Project and dialogue with the five national technical working groups, the regional technical working group, and the Regional Steering Committee as well as the Interstate Commission on Water Coordination (ICWC), its agencies and EC-IFAS.

Progress has been made on the preparation of CA-WARM Phase I project. During preparation, needs are identified that relate to: (i) data and analysis in the face of both a serious deterioration of inherited Soviet systems and lack of investment in new technology; (ii) institutions to strengthen capacity of professionals as well as the national and regional organizational structures and policies; and (iii) investment in new facilities and equipment.

A concept note project outline and agreement with EC-IFAS has been completed. The concept note identified the proposed development objective as to increase accessibility, reliability and analytical capacity to use water resources information for improved water resources planning, monitoring, and management in selected CA water institutions.

Further proposed outputs and outcomes from this grant activity include:

- Access to reliable water resources monitoring data and forecasts improved;
- Institutional roadmap for water resources management at the regional level developed;

- Use of strengthened information and technical capacity to address key water resources issues in the CA region demonstrated; and
- Priority investments to modernize water resources management prepared and implemented.

WATER PRODUCTIVITY PILLAR

ANALYTICAL DEVELOPMENT

Activity Title	*Social Impact Analysis of Water Supply and Sanitation Services in Central Asia*
Activity Status	Completed
CAEWDP Grant Amount	US$169,849
Task Team Leader	Robertus Antonius Swinkels

The objective of this grant activity was to promote the engagement of consumers and the use of evidence in developing WSS policies and plans for equitable access to water supply in Uzbekistan. This was to be achieved by: (1) conducting, with relevant stakeholders, an assessment of consumer perceptions and impacts of current WSS service access and quality; and (2) strengthening the capacity of country counterparts in engaging customers and stakeholders in policy development and social accountability in WSS service and investments.

Overall, this Technical Assistance was a breakthrough and has resulted in the government currently preparing a new WSS strategy. Collecting the data on WSS service conditions from consumers and local officials has been a novelty in Uzbekistan. This TA also led to the World Bank CA regional country office reassessing the WSS lending portfolio against the issues identified through this TA and what can be done in pipeline projects to better improve service conditions of the bottom 40 percent.

The first objective of this grant activity was largely achieved, whilst the second objective was partially achieved. Regarding the first objective, data on consumer perceptions and impacts of current WSS service access and quality have been collected and analyzed. A consultation draft that summarizes findings has been prepared and has been shared with government and a key Uzbek think tank (the Center for Economic Research (CER)). Verbal feedback has been obtained from the Minister of Finance and comments are expected from the Minister of Economy and the utility agency. The second part of the objective was partially achieved. Discussions were held with the CER to organize a discussion seminar in March 2015 to debate methods and findings with policy makers and policy researchers.

The pioneering nature of this activity in Uzbekistan meant that it was not without challenges. During the process of consultation, it became apparent that the idea of collecting feedback and expenditure data directly from WSS consumers was a new concept for the utility agency and it needed time to digest. The team solicited their detailed feedback on the consultation draft and incorporated the feedback into a report and dissemination event that addresses their concerns without compromising the objective of the work.

The major findings of this study include:

- There are serious and widespread drinking water and sanitation service inadequacies outside Tashkent. Large inequalities in service conditions and WSS expenditure burdens were witnessed in our sample.
- Rural households and those with low-incomes, in particular, experience hardship conditions with large amounts of them using open water sources for their drinking water needs.
- Data gathered from the selected sites show that sanitation conditions are equally problematic if not worse, suggesting public health is at risk.
- Households in the bottom 40 percent of the income distribution witness larger expenditure burdens for meeting their WSS service needs than the top 60 percent.
- There are serious performance problems of utility firms and many were said to be unable to conduct repairs.
- Respondents of our study indicated a willingness to pay higher monthly fees than they currently do for a continuous supply of quality water.

Follow-up dissemination activities are planned and findings will be used to inform WSS lending in Uzbekistan. Workshops with local think tanks and government officials have been planned in early 2016 to further promote debate and awareness of findings. A brown bag lunch was also organized in November 2015 in Washington, DC to disseminate the findings of the study.

Activity Title	*Analysis of Water Supply and Sewerage Services in Central Asia*
Activity Status	Ongoing
CAEWDP Grant Amount	US$270,000
Task Team Leader	Anna Cestari

The objective of this grant activity is to provide a diagnostic of the current status and challenges of WSS in four key CA countries - Kazakhstan, the Kyrgyz Republic, Tajikistan and Turkmenistan—and to outline policy priorities towards improved access, quality, efficiency, and sustainability of WSS services. This will be achieved by analyzing multiple dimensions of WSS sector development, in part based on primary data collection across countries sharing common sector legacies from the Soviet era. The study will contribute to informing the prioritization by governments of WSS sector reform and investment needs.

The importance of this study is highlighted by the dire WSS situation across the four countries. It is estimated that —only 40%-58% of households have access to piped water, inefficient water supply services experience 40% water losses on average, and sewerage services remain undeveloped outside the main urban centers. This situation is rooted in incomplete reforms towards decentralization and financial autonomy of service provision since independence. Correcting this situation calls for country-wide water demand management programs, based on extensive prioritized water supply infrastructure rehabilitations, coupled with modernization of sector policies, capacities and water usage incentives.

This grant activity aims to provide recommendations on how to strengthen WSS demand management and efficiency programs in each of the four countries. This will be achieved by potentially fostering relevant regional cooperation and capacity-building initiatives, along with country-specific policy and investment programs for utility modernization, loss reduction, energy efficiency, technology, etc. The expected outcomes of the grant include:

- Improving sector knowledge and outlining possible strategic policy reforms to better inform governments' and donors' policy/strategy; and
- Participation and engagement of stakeholders in the final activity workshop scheduled for September 2015.

Draft documents containing policy recommendations for two countries were completed during 2015. The draft reports on the policy recommendations for Tajikistan and Uzbekistan were prepared. They have been shared with the countries and comments are currently being received. There have also been two rounds of consultations in each of the four countries on the preliminary diagnostic (August 2015) and the policy recommendations (November 2015).

Grant activities related to utility analysis have been delayed. The utility's analysis part is delayed due to difficulties during the process of data collection. This has impacted the overall delivery/completion of the study. The task team, in conjunction with the lead consultant, are devising a solution to accelerate the progress on this component. Dissemination is planned to take place during a regional workshop in spring 2016.

Activity Title	*Strengthening Irrigation Governance*
Activity Status	Completed
CAEWDP Grant Amount	US$170,000
Task Team Leader	Robertus Antonius Swinkels

The development objective of this grant is to contribute to better irrigation water management in CA through the following expected grant outcomes: (i) identifying factors and innovative practices that positively affect performance of local irrigation water management institutions; (ii) preparing an associated diagnostic tool that will help in the design of program interventions for ongoing or future irrigation operations; and (iii) facilitating exchange of good practice experiences and knowledge of what works among relevant stakeholders across the region. Uzbekistan was identified as a pilot for this grant.

The activity has successfully identified key factors and conditions that are associated with good performance of local irrigation canal water management in Uzbekistan. The assessment was well received by the Country Management Unit (CMU) and Uzbek irrigation water management experts. The CMU claimed that the diagnostic tool that was designed will help focus program interventions for strengthening local irrigation water governance in the WB irrigation portfolio in the country. It intends to explore options for pilot testing the tool in one of its irrigation operations in Uzbekistan (Fergana valley 2). The activity created an opportunity for World Bank dialogue with the client on the content of a new Water Code needed to strengthen the legal framework for local water user associations. The findings are highly relevant for other CA countries given their common irrigation sector legacy and the pilot has enabled further development of the methodology.

This activity employed a case study research approach, which proved to be highly successful in achieving insights into local governance and management arrangements for irrigation. Using case study research method, the research found that the number of smallholders, water availability for cultivating profitable secondary crops and the irrigation fees associated with those secondary crops, and accountability of the public irrigation authority are the major factors that determine the quality of local irrigation water governance. The case study methodology has been unusual in this kind of study but has been highly successful as to providing a whole picture of the local management of irrigation, despite the potential sensitivity of the topic in Uzbekistan.

Following completion of the report, several follow-up activities were planned. Follow-up activities after September 2015 include: (i) sharing a consultation draft with the client and other stakeholders, (ii) gathering their feedback and incorporate that into a final draft, (iii) hold discussions with Regional Water GP Lead to explore operational application of the diagnostic tool. Further dissemination workshops are foreseen and expanding the work to other CA countries is also being explored.

INVESTMENT PREPARATION

Activity Title	*Promoting Irrigation Efficiency*
Activity Status	Ongoing
CAEWDP Grant Amount	US$250,000
Task Team Leader	Ijsbrand Harko de Jong

The overall development objective of this grant was to assist the five CA countries in improving irrigation efficiency by conducting thematic studies at the national level, strengthening capacities and institutions, and preparing National Action Plans for improving irrigation efficiency. The grant would raise awareness among national stakeholders about the importance of irrigation efficiency and its costs to the national economy, as well as the opportunities to improve this. While the activity will be implemented at the national level, it has been designed to take advantage of an improved environment for regional collaboration if it materializes during implementation.

The grant supported a study in Tajikistan to assess the costs, causes and solutions of and for irrigation inefficiency. The activity generated interest both within and outside Tajikistan. The study produced the methodology for determining the costs of irrigation inefficiency at the level of the Tajikistan national economy and the methodology for planning irrigation efficiency investments. The team had a QER in 2015 and based on the feedback, the team modified the report to better articulate the causes of inefficiency. The study has prompted interest in Tajikistan to better understand the cost of water and energy intensity, whilst significant interest in addressing irrigation inefficiency was communicated also by Kazakhstan. The study was effective in quantifying the cost of irrigation inefficiency due to expensive pumping. The findings of the analysis provide incentives for more rational and efficient use of energy and water resources, especially in the context of CASA-1000.

To finalize the activity, the final steps include:

- Consultations with the country partner; and
- Publication of the final output by March 2016.

Activity Title	*Technical Assistance for Developing Water Information Systems in Central Asia*
Activity Status	Ongoing
CAEWDP Grant Amount	US$470,000
Task Team Leader	Daryl Fields

The objective of this grant is to provide analytical foundations for the 'CA-WARM' project, which is aimed at strengthening the water information management systems to increase accessibility, reliability and analytical capacity to generate and use water resources information in CA. The recommendations will provide scoping needs, gaps, preparedness and consequent action plans for technical and capacity investments as input to the design of CA-WARM Phase-I Project while improving linkages with other relevant national-level and regional-level activities. The gap analysis will build on existing water resource information systems and identify incremental investments needed to establish a regionally compatible water resources information system for CA guided by international good practice.

The grant activity comprises three components: national action plans ("roadmaps"), regional assessment, and global review of good practices. The national action plans cover all countries in CA. The regional approach would be designed to knit and complement country-level approaches to establish a regional water resource information system that is open, coherent and easy to maintain. The global review will take advantage of World Bank lessons from other regions.

Scoping activities at national, regional and global level have been initiated, with a particular focus at the national level during 2015. National level activities have been the focus of 2015 activities. In each CA country, consultations have been organized to collect analytical inputs from key water related stakeholders. The team gained an understanding of the current situation as well as planned objectives to support modernization towards a reliable information system and analytical capacities for effective planning, operations and management of water resources. The experts provided not only inputs for the national but also priorities at the regional level. Additionally, in complementarity with the CA-WARM project preparation process at the national level, focal points within key water institutions have been identified to support, among others, the analytical and technical assessment activities. A technical mission was organized in August-September 2015 in the context of the CA-WARM project. The mission visited four countries and started the assessment activities at the national level as well as scoping the needs and priorities at the regional level. Workshops were organized in Kazakhstan, Kyrgyz Republic (Using the CA-WaRM Working Group), Tajikistan and Uzbekistan, convening stakeholders from various water institutions (i.e. Agriculture, Energy, Policy, Hydromet, and Environment). The participants appreciated the organization of such events and considered the meetings as excellent platforms for inter-institutional and multi-sectorial dialogue. Individuals have been appointed in Kazakhstan, the Kyrgyz Republic, and Uzbekistan.

RESULTS FRAMEWORK & 2015 RESULTS CHAIN

Annex

II

This annex contains:

- The top two tiers of the CAEWDP Results Framework, which outline the overall program goal and development outcomes by 2014; and
- A results chain, which measures the program outputs as at the end of 2015.

TABLE 3 — 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 2014	
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.	At least two regional institutions operating in capacity to support transboundary dialogue in key economic sectors.	
	Source:Existing institutions mandates and activities.					

DEVELOPMENT OBJECTIVE (Outcome)	Indicator	Baseline 2010/11	Milestone 1	Milestone 2	Outcome 2014	Risks
	At least three investment or policy options (two of which targeted at Tajikistan & Kyrgyz Republic) initiated to strengthen stability and predictability of power supplies	TAJ & KYRG have winter energy deficit.	Needs Assessment completed identifying priority activities	Winter energy coordination plans in place.	TAJ & KYRG Winter energy security improved from 2009/10 situation	Regional organizations are too weak to be able to convene substantive inter-state dialogue on water-energy There is no dialogue on water and energy, limited to individual national discussions
	Source: Government statistics					

DEVELOPMENT OBJECTIVE (Outcome)	Indicator	Baseline 2010/11	Milestone 1	Milestone 2	Outcome 2014	
Strengthened mutually beneficial regional cooperation enhances energy security and water security.	At least two investment 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 investment projects selected	At least one water and one energy investment take into account transboundary implications for effective use of water and energy resources.	
		Source: Government Reports, World Bank country CASs, pipeline of investments				
	Program activities are coordinated and donor supported through an MDTF (Multi Donor Trust Fund)	Active donors in the region, disparate coordination and inefficient	Draft agreement on Multi-Donor Trust Fund (MDTF) and donor coordination based on consultations	Established MDTF with a minimum of two donors contributing.	Multi-Donor trust Fund fully operational.	
		Source: Water Sector: DFID, EC, Finland, Germany, Switzerland, UNDP, others. Energy Sector: ADB, Russia, USAID, WB, others.				
	Sustainable for improved water dialogue across Central Asia stakeholder's exits.	No shared institutional and analytical framework exits 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 between at least three states are in place	Analytical framework is used in transboundary water policy discussions; Regular communication between relevant technical institutes in CA states	
		Source:Communication monitoring reports				

RESULTS CHAIN 2015

The Results chain below outlines the activities for each of the three program pillars against: (i) planned outputs; (ii) pre-2015 outputs; and (iii) end of 2015 outputs.

TABLE 4 — CAEWDP 2015 RESULTS CHAIN

Activities	Components	Planned Outputs (Indicators)	Pre 2015	2015
Component I: Energy Development pillar	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	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 & 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)	1. National energy plans in Tajikistan and Kyrgyz Republic took into consideration inter- and intra-regional energy trade implications (Contributes towards Component b). 2. Pre-investment analysis completed for 30+ options for stable and predictable winter power supply in Tajikistan & 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) 5. One new investment decision, CASA-1000 approved March 2014, included inter regional implications (Contributes towards Component b)	(1) *Enhancing Regional Power Trade:* a series of consultations with CA countries were held and a study to assess benefits from regional power trade for CA countries was prepared (Contributes towards Component c) (2)-*Kyrgyz Republic: Heating Efficiency Improvement* Assessment was finalized, shared with government and the responsible district heating company plans to use the proposed prioritized investment package. (Contributes towards Component a) (3) -*Kazakhstan Renewable Energy Integration in Power Market and System:* Two draft reports (reintegration into the network and reintegration into the market) have been provided (Contributes towards Component b). (4)-*Heating and Energy Efficiency Assessment for the Building Sector of the Kyrgyz* Republic reports were finalized (Contributes towards Component a) *Long-Term Sustainable Energy Sector Strategy and the Continuing Role of CAEWDP* report was finalized. (5) *Kyrgyz Republic - Advisory Support for the Regional Trade Initiatives Project* the Coordination Agreement between Tajikistan and Kyrgyz Republic Entity was finalized (Contributes towards Component b) (6) *Central Asia: CAREC Energy Sector Coordination* Two ESCC meetings were held, draft of Energy Strategy and Work Plan 2016-2020 was discussed (Contributes towards Component b)

Activities	Components	Planned Outputs (Indicators)	Pre 2015	2015
Component II: Energy-Water Linkages pillar	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.	Expand data management to enhance energy/water analysis 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	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 (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, 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) • 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)	(1) *Central Asia Energy-Water Portal* "Spatial Agent" 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 a). (2) -*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) (3) -*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). (4) *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).

Activities	Components	Planned Outputs (Indicators)	Pre 2015	2015
Component II: Energy-Water Linkages pillar Continued			3. Strengthened regional organizations capacity to facilitate regional dialogue. • The World Bank and EC-IFAS have agreed to prepare a $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 publically 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 trade-off 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)	

Activities	Components	Planned Outputs (Indicators)	Pre 2015	2015
Component II: Energy-Water Linkages pillar Continued			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)	

Activities	Components	Planned Outputs (Indicators)	Pre 2015	2015
Component III: Water Productivity pillar	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	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	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) 2. Draft Report "The Costs of Irrigation Inefficiency in Tajikistan" (Contributes towards Component b)	(1) *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) -*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). (5) -*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.

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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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