





**Central Asia Regional Water Supply and Sanitation Conference**

***Towards Sustainable and Climate Resilient Water Supply and Sanitation Services in Central Asia***

**Tashkent | November 13-14, 2019**

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# EXECUTIVE SUMMARY

A group of people standing in front of a crowd posing for the camera

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*First Central Asian Regional Water Supply and Sanitation Conference (November 13-14, 2019, Tashkent)*

More than 100 participants representing ministries and state agencies responsible for water supply and sanitation services from five Central Asian countries, utility managers, representatives of water utility associations, hydrometeorological agencies, regulatory agencies, NGOs, international experts and practitioners, development partners in the water supply and sanitation sector.

From November 13-14, 2019, the World Bank in collaboration with the Ministry of Housing and Communal Services of Uzbekistan conducted a regional conference *Towards Sustainable and Climate-Resilient Water Supply and Sanitation Services in Central Asia* in Tashkent, Uzbekistan.

Water is an important cornerstone of the Sustainable Development Agenda including its goals for safe drinking water and sanitation for all by 2030. All Central Asian countries share similar priorities and face similar challenges related to the sustainability of water and sanitation services.

Water supply and sanitation (WSS) services are expected to become increasingly susceptible to the expected impacts of climate change. These impacts will materialize in the form of more frequent and severe extreme events, including floods and droughts; different rainfall patterns and temperatures; and seasonal shifts. Climate change could have profound consequences for the region, but deep uncertainties remain. Major infrastructure rehabilitation works are carried out by the governments in the region with support of international financial institutions, however, the need for climate resilience is not yet mainstreamed into sector policy and long-term development planning.

This conference represented a significant milestone, bringing together for the first-time utility directors and key policy makers from the region, creating links for potential future cooperation and exchange. It helped launch more structural future exchange among professionals working in the water supply and sanitation sphere, using climate resilience as a common issue and entry point for this first conference .

This event helped the agencies and utilities share experience and knowledge on how to develop supply and sanitation services that are robust to respond to the challenges of climate change, how to develop policies for inclusive and sustainable service delivery and how - at a sectoral level capacities for resilience – can be enhanced gradually. The conference also discussed fundamental challenges in the WSS sector, including issues such as sector governance and tariff reform, addressing service gaps in rural areas, and transitioning to a more financially viable sector able to mobilize commercial finance in the long term.

**OBJECTIVES**

The main objectives of the conference were to:

* introduce and support adoption of climate resilience policies and practices for sustainable water supply and sanitation services;
* share knowledge, experiences and best practices on shared priorities for professionalization of utilities and improvement of drinking water and sanitation services; and
* create motivation and understand priorities among participants for regional and national-level processes for continued knowledge sharing, capacity building and network development at national and reginal level.

**KEY MESSAGES**

Key messages are as follows:

* Despite recognition of climate-related risks, the highest risks perceived by utilities are operational, financial and governance risks, with climate risks being perceived of second order; most are not yet systematically addressing climate risk in their business plans.
* Climate change is, among others, increasing drought and flooding risks; although given less attention, it is also compounding water quality deterioration; utilities could be more involved in basin-level management due to their dependence on the resource and could be vital agents for change.
* IWRM approaches are gradually being introduced at basin level, however stakeholder coordination and information sharing for better planning and management is suboptimal.
* Obstacles for advancing the water and sanitation sector relate to impeding institutional arrangements, lack of investments, and limited autonomy and incentives for utilities to improve performance.
* There is a need for backing performance improvement plans of utilities with better data on key performance indicators, increased accountability and more resources to implement these plans.
* Fundamental sector and tariff reforms are still required in many countries for utilities to move towards full cost recovery and hence credit worthiness on the long-term.
* Despite increasing investments in rural areas, urban-rural access gaps remain in all countries; national strategies do not comprehensively address these gaps, insufficient support is provided to service providers in rural areas, and/or clarity on service mandates in rural areas is blurred.

**CONFERENCE MATERIALS**

* Conference presentations:
  + English - <https://www.worldbank.org/en/events/2019/11/12/towards-sustainable-and-climate-resilient-water-supply-and-sanitation-services-in-central-asia>
  + Russian: <https://www.vsemirnyjbank.org/ru/events/2019/11/12/towards-sustainable-and-climate-resilient-water-supply-and-sanitation-services-in-central-asia>
* Conference video: <https://www.worldbank.org/en/events/2019/11/12/towards-sustainable-and-climate-resilient-water-supply-and-sanitation-services-in-central-asia>
* Blog: <http://blogs.worldbank.org/europeandcentralasia/improving-water-and-sanitation-central-asia-requires-determination-and-shared>
* Interviews: <https://www.worldbank.org/en/events/2019/11/12/towards-sustainable-and-climate-resilient-water-supply-and-sanitation-services-in-central-asia#2>
* Conference pictures:

**MEDIA COVERAGE**

The Conference received broad coverage in national and regional press:

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| * [Uzdaily](http://www.uzdaily.com/ru/post/47499) | * [CA-News.org](https://akipress.com/news:628568:Central_Asian_water_supply_and_sanitation_experts_share_experiences_at_conference_in_Tashkent/) | * [Orient](https://orient.tm/kachestvo-vodosnabzheniya-v-ca-v-fokuse-regionalnoj-konferencii-v-tashkente/) |
| * [Tashkent Times](http://tashkenttimes.uz/finances/4601-central-asian-water-supply-and-sanitation-experts-share-experiences-at-conference-in-tashkent) | * [Asia-Plus](https://asiaplustj.info/en/news/tajikistan/society/20191114/central-asian-water-supply-and-sanitation-experts-gather-in-tashkent-to-share-experiences) | * [Ekomaktab](http://www.ekomaktab.uz/index.php/ru/press-klub/poslednie-novosti) |
| * [UzA](http://www.uza.uz/en/society/tashkent-hosts-international-conference-on-water-supply-and--14-11-2019) | * [The Times of Central Asia](https://www.timesca.com/index.php/news/21812-uzbekistan-hosts-central-asia-water-supply-and-sanitation-conference) |  |

Conference video and Interviews were published in Facebook on the [World Bank Uzbekistan](https://www.facebook.com/WorldBankUzbekistan) page during December 23-20, 2019.

# I. CONFERENCE OVERVIEW

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| --- | --- |
| **Day 1, November 13**  **Climate Change and WSS Services – Building Resilience in Central Asian Context** | |
| *Venue:* | *Hyatt Hotel, Regency Ballroom* |
| 08:30-09:00 | Registration |
| 09:00-10:45 | Session 1: Introduction and Scene Setting |
| 10:45-11:15 | *Coffee Break* |
| 11:15-12:50 | Session 2: Building Resilience of Utilities under Uncertainty |
| 12:50-14:00 | *Lunch* |
| 14:00-15:35 | Session 3: Building Resilience of Utilities as Part of a Basin-Wide Approach |
| 15:35-16:00 | *Coffee Break* |
| 16:00-17:30 | Session 4: Building Resilience – Lessons and Priorities Going Forward |
| *19:00-22:00* | *Evening Reception* |
| **Day 2, November 14**  **Strengthening Equitable and Sustainable Services** | |
| *Venue:* | *Radisson Blu Hotel, Grand Ball Hall* |
| 09:00-10:45 | Session 5: Sector Reform and Performance Improvement |
| 10:45-11:15 | *Coffee Break* |
| 11:15-12:45 | Session 6: Universal Access: How to Reach Rural Areas |
| *12:45-14:00* | *Lunch* |
| 14:00-15:45 | Session 7. Towards Mobilizing Commercial Finance |
| *15:45-16:10* | *Coffee Break* |
| 16:10-17:30 | Session 8: Regional Collaboration and National Capacity Building for WSS |
| 17:30-18:00 | Closing |

# II. DAY 1, NOVEMBER 13, 2019

## Session 1: Introduction and Scene Setting

**Date:**  November 13, 2019

**Time:**  09:00-10:45

**Venue:**  Hyatt, Regency Ballroom

**Moderator:** Khairy Al-Jamal, Senior Water Supply and Sanitation Specialist, World Bank

**Part 1: Introduction**

**Context and Objective**

The opening session featured welcoming words from Lilia Burunciuc, World Bank Regional Director for Central Asia, and Muzaffar Saliev, Minister of Housing and Communal Services of Uzbekistan. The session involved overview of WSS sector in five Central Asian countries presenting the countries’ vision towards achieving Sustainable Development Goals for safe drinking water and sanitation for all by 2030, sector challenges and priorities.

**Session Structure**

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| --- | --- | --- |
| **Time** | **Content** | **Speaker** |
| 09:00-09:05 | Brief welcome | Khairy Al-Jamal, Senior Water Supply and Sanitation Specialist, World Bank |
| 09:05-09:12 | Opening Remark | Lilia Burunciuc, World Bank Regional Director for Central Asia |
| 09:12-09:32 | Opening Remark and Introduction to the Uzbek WSS sector | Muzzafar Saliev, Minister of Housing and Communal Services of Uzbekistan |
| 09:32-09:39 | Snapshot of Kazakhstan sector | Markhabat Omarova, Chief Expert, Committee of Housing and Construction, Ministry of Industry and Infrastructure Development of Kazakhstan |
| 09:39-09:46 | Snapshot of Kyrgyz sector | Saipidin Momunov, Deputy Director, Department for Drinking Water Supply and Wastewater Disposal under the State Water Resource Agency of Tajikistan |
| 09:46-09:53 | Snapshot of Tajik sector | Gul Sharipov, Deputy Head of Water Resource Management Department, Ministry of Energy and Water Resources of Tajikistan |
| 09:53-10:00 | Snapshot of Turkmen sector | Begench Mommadov, Head of the association “Karakum River Water Management”, State Committee for Water Resources of Turkmenistan |

**Speakers’ Biographies**

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| **Khairy Al-Jamal, Senior Water Supply and Sanitation Specialist, World Bank**  **A person wearing a suit and tie  Description automatically generatedDr. Khairy Al-Jamal, Senior Water Supply and Sanitation Specialist, World Bank**  Dr. Al-Jamal has been based in the World Bank office in Uzbekistan since September 2019. He has more than 29 years of experience in water and wastewater infrastructure engineering design, hydraulic modeling supervision, planning, program management and project management. In addition, he led multidisciplinary teams in water resources strategic planning; water sector reforms including policy and regulation formulation and promotion of appropriate institutional setup; and utility development and turnaround as well as portfolio buildup and management. On the other hand, given his qualifications in the energy sector, Mr. Al-Jamal led strategic projects and technical assistance in the energy sector. During his career, he worked for government, international organization and attained good experience in donor coordination and harmonization.  Mr. Al-Jamal joined the Bank in 2004 and helped to prepare and supervise number of projects and studies in water, sanitation, urban, mining and geothermal energy in many countries including Nigeria, Mongolia, China, Indonesia, Lebanon, Yemen, Egypt and the Palestinian Territories. He has Post Doctorate in Water Systems Design and Optimization from University of Cambridge, UK; PhD and MSc in Renewable Energy Resources from University of Reading, UK and BEng of Mechanical Engineering from Birzeit University, Palestine, and has a rich publication record of more than 25 scientific papers, article and reports in the water and energy sectors. |
| **Lilia Burunciuc, World Bank Regional Director for Central Asia**  **[Lilia Burunciuc](http://www.worldbank.org/ru/about/people/lilia-burunciuc)Lilia Burunciuc** is the Regional Director for Central Asia at the World Bank. Since joining the World Bank in 1996, she held a range of increasingly challenging positions: Manager in Operations Policy and Country Services; Country Manager for Macedonia; Country Program Coordinator for Southern Africa and Central Asia; Senior Country Officer for Ukraine and Belarus.  She has strong and diversified World Bank experience in leading teams and complex operational and corporate assignments such as regional and country strategies, World Bank’s operations simplification and coding reform. She has extensive experience on leading policy dialogue with governments on various aspects of development. She led the preparation of the first World Bank regional strategy for Central Asia.  Prior to joining the Bank, Ms. Burunciuc was a Deputy Governor of the National Bank of Moldova (central bank). In that capacity she worked on the establishment of a regulatory framework for the foreign exchange market, reform of banking supervision and bank restructuring.  She has a Master of Public Administration degree from George Washington University (USA) and a degree (master level) in Economics, Management and Planning form the Technical University of Moldova. |
| **Muzzafar Saliev, Minister of Housing and Communal Services of Uzbekistan**  Mr. Muzaffar Saliev was appointed the Minister of Housing and Communal Services on July 5, 2017. Prior to this appointment, he was Deputy Minister of Defense in charge of personnel. Holds the rank of colonel.  The Ministry of Housing and Communal Services was created in April 2017. |
| **Markhabat Omarova, Chief Expert, Committee of Housing and Construction, Ministry of Industry and Infrastructure Development of Kazakhstan**  C:\Users\momarova\Desktop\owi8606201654338359419.tmp.jpgMs. Omarova is a chief expert at the Water Supply and Wastewater Disposal Department in Nur-Sultan.  Markhabat Omarova holds a degree in international law from the Kazakh Institute of Law and International Relations. In 2003, she worked as a court secretary for the Fyodorovsky District Court. In 2008, she was transferred to the Arkalyk City Court and in 2010 to the Specialized District Criminal Court.  In 2011, Ms Omarova headed the Legal and Human Resources Department at the Combined Heat and Power Plant of the town of Kosshy. In 2012, she began to work for the Construction and Residential Utilities Committee at the Ministry of Industry and Infrastructural Development of Kazakhstan.  Her total length of service for government agencies is 14 years. |
| **Saipidin Momunov, Director, Department for Drinking Water Supply and Wastewater Disposal under the State Water Resource Agency of the Kyrgyz Republic**  **Описание: D:\САЙПИДИН\5 (личные)\Фото - 2019.JPG**Mr. Momunov graduated from the Osh State University in 2009 with a master’s degree in State and Municipal Administration, and before that in 2001, he graduated from the Osh Technological University as a stock manager. From 2005-2012, he held various positions, he worked as a leading, main expert and head of department at the State Administration of Osh Region. From 2012-2014, he worked as a chief expert, and then as a head of department at the Office of Plenipotentiary Representation of Kyrgyz Government in Osh Region. From 2014-2015, he worked in the mayor office of Osh city. Since 2016 to present, he was a head of the Department for Drinking Water Supply and Wastewater Disposal of the Southern Regional Department , then deputy director of the DDWSWD and has been recently appointed as Director of the DDWSWD. He has many certificates of honor and is the 3rd class adviser to the Civil Service. He was awarded a medal of the State Agency for Fire Service under the Ministry of Emergencies of the Kyrgyz Republic. |
| **Gul Sharipov, Deputy Head of Water Resource Management Department, Ministry of Energy and Water Resources of Tajikistan**  cid:image004.png@01D598BD.894E7940Mr. Gul Sharipov graduated from the Tajik National University in 1986 with degree in  hydrogeology and engineering, he is a PHD holder in Hydrogeology and Engineering Geology Department of the Tajik National University.  From 1986 he is a Senior Technical Hydrogeologist in the Main department of Tajik Geology. From 1990 to 2014 Mr. Sharipov joined “Tojikselhozvodoprovod” and worked in a several positions.  From 2014 he was appointed as a Deputy Head of Water Resource Management Department, Ministry of Energy and Water Resources of Tajikistan. |
| **Begench Mommadov, Head of the association “Karakum River Water Management”, State Committee for Water Resources of Turkmenistan**  Mr. Begench Mommadov has over 30 years of experience in the water sector of Turkmenistan. He has held various posts in the government agencies of Turkmenistan, including important positions as the Head of Construction Unit, Head of Trust, Deputy Minister of Water Resources and other key posts. He currently is the Head of “Garagumderyasuvkhodzhalyk” (Karakum River Water Management) Association of the State Committee for Water Resources of Turkmenistan |

**Session 1.1 Summary**

* **World Bank Regional Director for Central Asia Lilia Burunciuc** highlighted that the conference is a unique platform for discussion among water sector professionals. Water security is important for food security, environmental sustainability and is a crosscutting issue for SDG. Water security means sustainable management of water resources in an integrated manner taking into account the needs of population and businesses, environmental needs and resilience of infrastructure. Climate change impact will have a diverse impact on availability of water and will put more pressure on resources. Today, climatic risks are not included in business planning. Benefits from safe systems of water supply and sanitation are 2 to 5 times larger than the cost of business as usual. She stressed that the main objective of the conference is knowledge sharing.
* **Minister of Housing and Communal Services of the Republic of Uzbekistan Muzzafar Saliev** describedthe conference as a platform for discussion of resilient water supply services and knowledge sharing. He reiterated importance of water for life. Pressure on water resources in Uzbekistan is driven by population growth, industrial development and changing water availability. Water availability is affected by the worsening quality of water, geographical location of settlements and uneven distribution of water sources. Arid climate, extreme events, these and other trends may result in further deterioration of water. WRI identifies Uzbekistan as a water stressed country.
* 92 percent of withdrawals is used in agriculture, drinking water 5.5 percent. At the baseline year of establishing the Ministry - coverage with water supply and sanitation – 64% from centralized water, 26.1% alternative resources, 9.9 percent – delivered water in tanks. 19 percent of rural population had 24/7 of population. Losses accounted for 30-40 percent, there was no unified policy in decentralized services, capacity of water utilities was low, no metering systems were in place.
* Provision of rural water supply services is included in the priority action plan for 2021. With establishment of the Ministry in 2017, a vertical management system, comprising of 13 regional vodokanals and 2 interregional water supply companies was established. Before 2017, the system was decentralized and starting in 2017 based on recommendations of ADB it was decided to have a centralized approach. Allocation from the budget – US$270mln, resulting in an increased coverage of 2.1 mln people. This has been achieved through implementation of large-scale projects financed by the state and financing of multilateral development Bank, wit the ADB being the largest. Implementation of projects financed by the World Bank – in 2017, 275 mln
* The Ministry initiated development of the concept for water supply and sanitation sector for 2030. In parallel, the Ministry is introducing a PPP model for four cities with the help of the Asian Development Bank: Karshi, Namangan, Bukhara and Samarkand. In April 2018-2019, the Government of Uzbekistan adopted a resolution for new water supply tariffs which was supported by the World Bank. Mr. Saliev also shared with participants ambitious plans for the next three years with 51 projects planned for implementation with the total amount of US$4.49 bln. To name only few – installation of water measurement devices to achieve the universal coverage in the next 3 years; Asian Infrastructure Investment bank is financing universal coverage of Bukhara oblast with WSS – US$660 mln. As a result of these and other interventions by 2030, Uzbekistan commits to have 91.2 percent of population covered through centralized systems.
* **Markhabat Omarova, Chief Expert of the Committee of Housing and Construction under the Ministry of Industry and Infrastructure Development of Kazakhstan** providedan overview of the water services sector in Kazakhstan. The country has high rates of water supply coverage in urban areas accounting for 94.5 percent, coverage of rural population accounts for 84.4 percent with 59.9 percent of all the villages in the country covered with drinking water supply services. In total, 90.2 percent of Kazakh population have access to public water supply services. In 2011-2018, around KZT589.2 bln have been allocated under the state regional development program “Aq Bulaq” with 2015 projects implemented in the same period, most of them targeting rural villages. Different technical options are proposed for rural areas, including integrated block modules and individual wells. Access to wastewater services is a priority identified by the Government of Kazakhstan with high deterioration of existing assets and large investment needs in small cities. In total, there are 53 WWTF planned to be commenced by 2025 with 17 of them being completely new. Total investments in rehabilitation/construction of WWTF is estimated at KZT328.3 bln.
* **Saipidin Momunov, Director of the Department for Drinking Water Supply and Wastewater Disposal under the State Water Resource Agency of Kyrgyz Republic** emphasizedthat ensuring universal access to drinking water supply remains a priority for the Kyrgyz Republic. Currently, a total of 1,166 villages have water supply systems, which accounts for 65 percent of total rural population. Increased construction of rural WSS schemes has been observed in the period of 2001-2018. Water supply services are delivered by private drinking water associations in rural areas, while municipal water utilities (Vodokanals) provide services to cities and towns. In total, the country has more than 700 registered associations with 500 of them operational; in addition, there are 31 municipal utilities providing water supply services to cities and towns. On the regulatory side, tariff calculation is done by municipal utilities and rural associations for their service area and endorsed by the territorial antimonopoly agencies. However, the decision on tariff is not final unless it is approved by local governments. There are significant and acute challenges for tariff regulation in both urban and rural areas. A clear tariff policy for WSS need to be developed. The Government of Kyrgyz Republic works with different multilateral and bilateral development organizations on improving access to water services – EBRD, WB, ADB, ISDB. Total portfolio of investments reached US$279m in 2019.
* **Gul Sharipov, Deputy Head of Water Resource Management Department of the Ministry of Energy and Water Resources of Tajikistan** pointed tothe commitment of Tajikistan to sustainable use of water resources at the national, regional and global level. The country launched a number of global initiatives, including an International Decade on Sustainable use of water endorsed by the UN GA. In 2015, the Government of Tajikistan approved a water sector reform program paving the way to introduction of IWRM in the country. The draft National Water Strategy recognizes prioritization of rural water supply and sanitation.
* **Begench Mommadov, Head of the Association “Karakum River Water Management”, State Committee for Water Resources of Turkmenistan** introduced Turkmenistan’s water sector. Turkmenistan’s water resources are used of agriculture, industry, domestic purposes and other needs of all sectors of the country's economy. Population growth and economic development increase pressure on already scarce water resources. Management of water resources is a responsibility of the Turkmen Government. Local authorities are authorized state bodies for drinking water. Different Ministries/Agencies have institutional responsibility over water use control, water quality and hydrological data monitoring. Development of the sector is guided by a number of programmatic documents. Currently, Turkmenistan is implementing Altyn Asyr project and also implements projects within the national program on providing enabling access of population to clean drinking water. Turkmenistan expects to be affected by climate change, particularly related to melting of glaciers. A challenge of increasing water demand is acute in the scenario if increased variability.

**Part 2: Setting the Scene - Climate Change in Central Asia: Impacts on Water Services – Setting the Regional Context**

**Context and Objective**

Countries in Central Asia face common climate change challenges. Impacts are already being felt, from melting glaciers to more severe and prolonged droughts and floods in the lowlands, and are likely to intensify. Climate change risks, inefficient infrastructure and unsustainable water management, a large rural population, all such factors contribute to make Central Asia a highly vulnerable region and building resilience to climate change is a priority. This session discussed water security related risks of continuing “business as usual” and climate change impacts on water resources in the region looking into the cases of Uzbekistan and Kazakhstan.

**Session Structure**

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| --- | --- | --- |
| **Time** | **Content** | **Speaker** |
| 10:00-10:10 | Overview on Water Security in Central Asia | David Michaud, Practice Manager Water Europe and Central Asia, World Bank |
| 10:10-10:20 | Climate Change Impacts on Water Resources in Uzbekistan | Natalya Agaltseva, Head of Project Monitoring and Implementation Department, Uzhydromet |
| 10:20-10:30 | Overview of Climate Change Impacts on Kazakhstan | Danara Alimbayeva, Deputy Director General, Kazhydromet |
| 10:30-10:45 | Q&A with speakers | Moderated by Khairy Al-Jamal, World Bank |

**Speakers’ Biographies**

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| **David Michaud, Practice Manager Water Europe and Central Asia, World Bank**  In his current position, he oversees the World Bank’s water portfolio and staff in those regions. Prior to his current position, Mr. Michaud had worked in the Bank’s Europe and Latin America regions, gradually moving the focus of his activities from infrastructure and project development to utility efficiency and sector reform programs. He also led analytical work and policy advice to national governments on issues, such as sector financing, utility governance and sector performance monitoring.  Prior to joining the Bank, Mr. Michaud worked as a water engineer and project manager in the private and non-profit sectors. He has a M.Sc. in Environmental and Sanitary Engineering from the Ecole Polytechnique Fédérale de Lausanne in Switzerland and a M.Sc. in Engineering and Management from the Massachusetts Institute of Technology. |
| **Natalya Agaltseva, Head of Project Monitoring and Implementation Department, Uzhydromet**  A picture containing cabinet, indoor, wall, person  Description automatically generated Ms. Natalya Ageltseva is head of Monitoring and Implementation of Projects Department, at Centre of Hydrometeorological Service (Uzhydromet). She has extensive experience in international projects under UNDP related with climate change. |
| **Danara Alimbayeva, Deputy Director-General, Kazhydromet**  Ms. Alimbayeva has two higher degrees in the field of meteorology and finance, master's degree in applied ecology.  She began her career in in the Republican State Enterprise Kazhydromet in 2012 as a leading meteorologist. In 2003-2009, she held various position from engineer-meteorologist, lead engineer-meteorologist to head of the meteorology office. In 2011-2015 she worked as Director of the Meteorology Department and in 2015-2017 as Director of the Environmental Monitoring Department. Since September 18, 2017, she was appointed Deputy Director-General of the Republican State Enterprise Kazhydromet. |

**Session Summary**

* **David Michaud, World Bank Water Practice Manager for Europe and Central Asia,** made a presentation on the overview of water security in the region setting the scene for further discussions. He highlighted that water security is the ability of the countries to use their resources effectively and deliver services to their citizens. The countries of Central Asia are the most water-stressed but at the same time the least productive users of water. Economies of Central Asian countries rely a lot on irrigated agriculture. In the context of rapidly changing population, growing economy, water demands continue increasing. The climate change is increasing pressure and variability. Mr. Michaud listed four actions areas proposed as priorities for the countries: Area 1 - national agenda on water supply and sanitation for social stability and human capital development; Area 2 – water resources overhaul for increased productivity - another conference in Almaty focused on how to better use water for irrigation in different countries; Area 3 - energy development and trade as engine of growth; and Area 4 – adaptation and resilience for climate change. A small study two years ago estimated that cost of poor water supply and sanitation in terms of health, productivity and premature death is higher than total investments needed to achieve universal access to water. Actions on both demand and supply management are important. Changing climate, floods and droughts, quality of water make us think on how to build systems resilient to changing circumstances. In three other areas, productivity can be increased, a lot can be done in the use of energy: efficiency and connectivity of the grids can be improved, exchange and more effective use of energy can be promoted. Central Asian countries can be prepared for climate change impacts, increased variability and ensure that different scenarios are taken into account in infrastructure investment planning. Mr. Michaud also highlighted importance of finding solutions at regional level on how to supply water in the context of change in water flows and other growing challenges of climate change.
* **Natalya Agaltseva, Head of Project Monitoring and Implementation Department, Uzhydromet,** presented climate change impacts on Uzbekistan. She noted that intensive climate warming is observed in the region throughout the year. Global warming is characterized not only by increasing temperature but also seasonal variability of precipitation, climate-induced phenomena such as prolonged heat waves and frequency of droughts and floods. In Uzbekistan, temperature is growing, precipitation becomes highly variable, duration of dry hot period is increasing, glaciers are melting, snow cover is reducing, and frequency of droughts and extreme hazards is increasing. Water resources are the most vulnerable and sensitive to the climate change impacts because water sources depend on the snow cover, glaciers and precipitation. Uzbekistan has 17,777 natural water courses. The area that is most affected by climate change is the area near the Aral Sea, most part of Karakalpakstan. Climate change impacts in this area include accelerated desertification, sand storms, reduction of water sources, increased drought frequency, increased demand of water by agriculture, intensification of land degradation (salinization, transfer of salt from the dried-up Ara Sea bed, erosion). One of the scenarios forecast reduction of water, more and longer droughts, frequency of extreme low water periods, low precipitation, and high temperature. Extreme climate scenario estimates that growing season flow may decrease by 25-40%. By 2050, water resources in Amu Darya basin would reduce by 10-15%, in Syr Darya basin – by 2-5%. Great attention in Uzbekistan is paid to climate monitoring, modernization and automation of hydromet stations and hydromet posts. The World Bank-financed Climate Adaptation and Mitigation for the Aral Sea Basin Project is supporting modernization of the climate monitoring network. In the context of climate change, adaptation is very important. Adaptation in the water sector is related to more efficient use of water, introduction of drought-resistant crops, introduction of water-saving technologies in water-intensive sectors, use of water monitoring systems and improvement of early warning systems for forecasting droughts, reconstruction of water and irrigation systems, introduction of integrated water resources management, agricultural reforms, better legal regulation of water and land relations, and institutional development, and others.
* **Danara Alimbayeva, Deputy Director-General of Kazhydromet** provided an overview of climate change impacts on Kazakhstan. Kazhydromet is a national agency that is responsible for hydromet services. Over the last 100 years, temperature increased in Kazakhstan by 1.37°C while the global average temperature for the same period increased by 0.85 °C. The general trend over the last 70 years indicates increase in air temperature, mostly in cold season; increase in the number of hot days (above 35°C) in Western and Southern regions of Kazakhstan; reduction of precipitation mostly in summer and fall. Kazakhstan Institute of Geography estimated that over the last 53 years, the area of glaciers in northern slopes of Alatau reduced by 41% and glacier melting per year is around 0.8% of the area. The highest rates of glacier melting is reported in the basins of the Shamalgan and Ulken Almaty Rivers (around 1%). It is estimated that by the end of 21th century glaciers in the northern slopes of Alatau mountains may disappear that can have dramatic implications. Climate change is also affecting the level of water in the Caspian Sea. Over the last 20 years, the level of water in the Caspian Sea dropped by 1.39 meters. Climate change increased the number of hydrological extremes on the rivers of Kazakhstan – floods and mudflows in mountain rivers and periods of low water. Mitigation and adaptation measures need to be taken to prevent and be prepared for the impacts of climate change. Mitigation includes energy efficiency, use of renewables, reduction in use of fossil carbon fuel, development of new low-carbon technologies, prevention of forest fires and reforestation. Adaptation in the water sector include amendments to the regulatory framework to take into account climate change, water metering, water conservation, integrated water resources management and other measure.

## Session 2: Building Resilience of Utilities under Uncertainty

**Date:**  November 13, 2019

**Time:**  11:15-12:50

**Venue:**  Hyatt, Regency Ballroom

**Moderator:** Susanna Smets, Senior Water Supply and Sanitation Specialist, World Bank

**Context and Objective**

Resilient water management requires building and improving the capacity of water utilities to assess and identify climate risks and adapt current practices to adequately respond to the climate change challenges. This session discussed the experience of Uzbekistan and Kyrgyz Republic in assessing climate risks and planning adaptation measures that can be taken by utilities to strengthen climate resilience. The session also presented the experience from Portugal – the approach and strategic planning process of Aguas Portugal and operationalization of adaptation plans.

**Session Structure**

|  |  |  |
| --- | --- | --- |
| **Time** | **Content** | **Speaker** |
| 11:15-11:25 | Brief introduction | Susanna Smets, Senior Water Supply and Sanitation Specialist, World Bank |
| 11:25-11:40 | Impacts of climate change on sources of water supply in Samarkand city | Komil Yusupov, Director, Samarkand Regional SUE "Suvoqova" |
| 11:40-11:55 | Strategic Corporate Resilience Planning and Implementation | Alexandra Serra, Aguas Portugal |
| 11:55-12:15 | Kyrgyz Republic: Climate Resilience Assessments and Measures | Nurgul Esenamanova, EBRD, and by Nurlan Maksutaliev, Director of Narynvodokanal |
| 12:15-12:40 | Q&A and panel with speakers and audience | Moderated by Susanna Smets, World Bank |
| 12:40-12:50 | Interactive audience poll | |

**Speakers’ Biographies**

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| **Susanna Smets, Senior Water Supply and Sanitation Specialist, World Bank**  A person smiling for the camera  Description automatically generatedMs. Susanna Smets is a Senior Water Supply and Sanitation Specialist with the Global Water Practice of the World Bank. Susanna joined the World Bank in 2011, working in East Asia and Pacific. Currently, she is working in Eastern Europe and Asia, including Moldova, Tajikistan and Kyrgyz Republic. As part of the Danube Water Program, she was leading a regional study in seven countries in the Danube Region on rural water and sanitation services, as well as a multi-country study on sustainability of rural water services. She has over 15 years of professional experience in water supply, sanitation and water resources management. Prior to joining the World Bank, she worked in the Middle East, Asia and Europe for GiZ, DFID, the private sector and a Dutch water utility. She has a master’s degree in water resources management from Wageningen University (Netherlands) and a Master of Business Administration from the Open University (United Kingdom). |
| **Komil Yusupov, Director, Samarkand Regional State Unitary Enterprise "Suvoqova"**  Mr. Yusupov graduated from the Samarkand State Agriculture Institute. Since 2014, he has been working in Samarkand Suvoqova. He held various position from Lead Specialist of the Production and Technical Department to Deputy Chief Engineer and then Chief Engineer. In May 2018, he was appointed as Director of Samarkand Regional State Unitary Enterprise Suvoqova. |
| **Alexandra Serra, Board Member at Aguas de Portugal International, President of the Portuguese Water Partnership**  Alexandra Serra is an executive manager, with more than 25 years of experience in the public and private water sector and a wide experience in international markets, having participated or coordinated projects in Morocco, Algeria, Angola, Mozambique, Cape Vert, Brazil and Guinea-Bissau. Her main professional experience is related to water supply and wastewater utilities and engineering consultancy in the fields of Water Resources and Water Services. She has a MSc in Civil Engineering, with the thesis “*Financing Models in Water Services Enablers of Infrastructure’s Asset Management Best Practices*”.  Her managerial carrier began in 1998, at the multinational DHV Group, where she was the Water and Environment Business Unit Director at FBO-DHV subsidiary in Portugal. After 2001, at AGUAS DE PORTUGAL GROUP, she had different managerial positions: responsible for the Investments Planning and Control Corporate Unit, Engineering Director and Executive Board Member of the AdP Shared Services company, with direct responsibilities in Information Systems, Engineering and Marketing and Communication.  Presently, she is board member at Aguas de Portugal International, the company responsible for the international activities of Aguas de Portugal Group. She is the President of the Portuguese Water Partnership, a platform for the internationalization of the Portuguese Water Sector. In 2010-2011 she was President of the Portuguese Water Resources. In 2008, she was appointed Portuguese Commissioner to the 5th World Water Forum by the Portuguese Environmental Minister. |
| **Nurgul Esenamanova, Associate, Climate Resilience Investments at the European Bank for Reconstruction and Development**  C:\Users\esenaman\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Word\for intranet_5x5.jpg Nurgul Esenamanova is based at the EBRD’s Bishkek Residents Office in the Kyrgyz Republic where she works on mainstreaming climate resilience into EBRD’s investment operations in Central Asia, especially major infrastructure projects. Nurgul leads a number of municipal water projects in the Kyrgyz Republic and Central Asia as well as policy dialogue activities related to climate resilience including building the adaptive capacity of the Kyrgyz water sector and at the national government level with the establishment of the Climate Finance Center of the Kyrgyz Republic. |
| **Nurlan Maksutaliev, Director of Naryn Water Utility**  NurlanNurlan Maksutaliev has been Director of Naryn Vodokanal since 2014.  Mr. Maksutaliev graduated from the Kyrgyz Technical University as a mechanical engineer, with a master’s degree in mechanical engineering in 1997. In 1996-2000, he worked as a technician and engineer in Automation of Control Systems Unit of Naryn Electric Networks Enterprise. In 2000-2001, he was Deputy Head of Electricity Distribution Zone at Zhumgal Electric Networks Unit. In 2001-2008, he was Executive Director and then Deputy Director General of Naryn Free Economic Zone. In 2012 – 2013, Mr. Maksutaliev worked as Director of Naryn City Department of Municipal Property. He was delegate of Naryn City Kenesh of XXIV, XXV and XXVI convocations from 2004 to 2016.  III class advisor to the municipal service.  Award: Excellent servant of the municipal service of the Kyrgyz Republic. Inventor of the Kyrgyz Republic, author and owner of 9 patented inventions. Author of 5 research articles. |

**Session Summary**

* Discussing current climate impacts is a useful way to engage the water companies in climate resilience planning as increasingly frequent climate emergencies are what matters most to them.
* Each water company has a unique implementation plan which outlines the adaptations needed to maintain, grow and enhance their service provision as well as individual adaptive capacity building plans so that they are capable of effectively predicting, planning and implementing the required adaptation measures and risk mitigation measures.
* Given the capacity constraints within many water companies in the region, and given the need that external drivers may be necessary for change, sector-wide initiatives could be most effective when they incentivize resilience measures and when systematic requirements are introduced
* The climate adaptation planning implemented, such as piloted in the Kyrgyz republic shows promise and could be replicated in other priority sectors of the Kyrgyz economy. However, unless finance is available forwater companies to implement these measures, they will continue to be unprepared for both current and future climate emergencies.
* With long-term strategic support from IFIs, especially in assessments and capacity building activities, countries can take major steps to improve their adaptive capacity and to address climate resilience in a strategic manner. Some adaptation investment needs are already urgent and range from relatively minor equipment needs to significant structural investments.

**Audience Poll Results**

To the question on where participants think their organizations stand on climate resilience, majority responded as follows:

* We have started to identify climate-related and other risks for resilience **(55%)**
* We have integrated resilience in our business plan or strategy **(29%)**

A ranking question on “what you see as the greatest risk to your utility/organization” resulted as follows:

1. Operational risk: inefficiency is high, water losses get worse and infrastructure is crumbling
2. Financial risk: we are financially unsustainable, and our sources of finance are decreasing
3. Integrity: corruption hinders our operations
4. Quality of service risk: our water quality is often compromised
5. Environmental risk: our operations negatively impact or pollute the environment
6. Climate change risk: floods and droughts hinder/stop service delivery

## Session 3: Building Resilience of Utilities as Part of a Basin-Wide Approach

**Date:**  November 13, 2019

**Time:**  14:00-15:35

**Venue:**  Hyatt, Regency Ballroom

**Moderator:** Arcadie Capcelea, Senior Environmental Specialist, World Bank

**Context and Objective**

This session continued discussions of Session 2 and outlined the roadmap for water utilities on operations and planning investments under climate uncertainties. Because adaptation involves a wide range of stakeholders and sectors, this session also covered broader water resources management issues such as regional cooperation on water quality and climate change impacts on water quality on Amu Darya river, water sector reform and strengthening basin management in Tajikistan. The presentation from Turkmenistan discussed how hydromet services can help the countries to manage water resources management and be prepared for climate change extremes.

**Session Structure**

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| **Time** | **Content** | **Speaker** |
| 14:00-14:05 | Brief introduction | Arcadie Capcelea, Senior Environmental Specialist, World Bank |
| 11:25-11:40 | Roadmap on Climate-Resilient Water Utilities | Susanna Smets, Senior Water Supply and Sanitation Specialist, World Bank |
| 11:40-11:55 | Regional Cooperation on Water Quality: the existing platforms, and the research on climate induced water quality challenges | Tais Reznikova, Regional Environmental Center for Central Asia |
| 11:55-12:15 | Transitioning to an IWRM approach at basin level | Gul Sharipov from Ministry of Energy and Water, and Saidmurod Kalandarov, Lead Engineer, Dushanbe Vodokanal |
| 12:15-12:40 | Contribution of Turkmenhydromet to the development of effective management approaches on the Amu Darya River | Hemrakuly Babadjanov, Head of Lebap Region Hydro-meteorology Center |
| 12:40-12:50 | Q&A and with speakers and audience | Moderated by Arcadie Capcelea, World Bank |
| 15:25-15:35 | Interactive audience poll | |

**Speakers’ Biographies**

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| **Arcadie Capcelea, Senior Environmental Specialist, World Bank** A person wearing a suit and tie  Description automatically generated  Mr. Capcelea has been working since 2000 as Senior Environmental Specialist at the World Bank for Europe and Central Asia Region, Sustainable Development Environment, Natural Resources and Blue Economy Global Practice. In 1990-2000, he has been Deputy Minister and Minister at the Ministry of Environment; Ministry of Environment and Territorial Development of the Republic of Moldova. He has been a researcher at the Institute of Geography of the Academy of Science of Moldova and Senior Scientific Researcher in 1978-2000. Mr. Capcelea has Doctor Habilitatus in Biology, 2014, Chisinau, Academy of Science; Ph.D. in Geography, 1987, Moscow State University; and M. Sc. in Geography, 1978, Moscow State University. |
| **A person smiling for the camera  Description automatically generatedSusanna Smets, Senior Water Supply and Sanitation Specialist, World Bank**  Mrs. Smets joined the World Bank in 2011, working on water sanitation in East Asia and Pacific. Currently, she is working in Eastern Europe and Central Asia, including Moldova, Tajikistan and Kyrgyz Republic. As part of the Danube Water Program, she was leading a regional study in seven countries in the Danube Region on rural water and sanitation services, as well as a multi-country study on sustainability of rural water services. She has over 15 years of professional experience in water supply, sanitation and water resources management. Prior to joining the World Bank, she worked in the Middle East, Asia and Europe for GiZ, DFID, the private sector and a Dutch water utility. She has a master’s degree in water resources management from Wageningen University (Netherlands) and a Master of Business Administration from the Open University (United Kingdom). |
| **Tais Reznikova, Water Resources Management Specialist, Water Initiatives Support Programme, Regional Environmental Centre for Central Asia (CAREC)**  IMG-2416.jpgTais Reznikova is a water resources management specialist with an academic background in IWRM, environmental management and policy. She is a specialist at the Water Initiatives Support Programme at the Regional Environmental Centre for Central Asia (CAREC) in Almaty, Kazakhstan and has more than 4 years of experience of the implementation of the water projects in Central Asia in the field of basin management and planning, water diplomacy and ecosystem-based management. She holds a M.Sc. in Environmental Science, Policy and Management from Central European University. Her academic interest relates to the engagement of the private sector with sustainable water management and sustainability issues. Tais is currently coordinating the swiss Blue Peace Central Asia – Dialogue Platform project aiming to promote evidence-based dialogue at the political level and to ensure support effective and sustainable transboundary water management in Central Asia. |
| **Sharipov, Deputy Head of Water Resource Management Department, Ministry of Energy and Water Resources of Tajikistan, Ministry of Energy and Water**  cid:image004.png@01D598BD.894E7940Mr. Gul Sharipov graduated from the Tajik National University in 1986 with degree in  hydrogeology and engineering. He holds PhD in Hydrogeology and Engineering Geology Department of the Tajik National University.  From 1986 he was a Senior Technical Hydrogeologist in the Main Department of Tajik Geology. In 1990-2014, Mr. Sharipov worked in various positions at Tojikselhozvodoprovod.  In 2014 he was appointed as Deputy Head of Water Resource Management Department, Ministry of Energy and Water Resources of Tajikistan. |
| **Saidmurod Kalandarov, Lead Engineer, Dushanbe Vodokanal**  cid:image005.png@01D598BD.894E7940Mr. Saymurod Qalandarov graduated from the Tajik Technical University in 1991 with degree in civil engineering. Mr. Qalandarov joined the State Unitary Entity “Dushanbe Vodokanal” in 1996, and since then worked in DVK in different capacities. He was appointed as a Chief Engineer of SUE DVK in 2017. |

**Session Summary**

* This session presented how utilities – faced with the uncertainties of climate change – can analyze their systems, identify their vulnerabilities and develop options to address impacts like water scarcity, floods, and water quality deterioration. Utilities need to stress-test measures for a range of future conditions in terms of water demand and availability. This will allow determining short-term no-regrets measures, as well as medium and long-term investments to adapt to the evolving conditions in the basin(s) [[1]](#footnote-1).
* The session was enriched by the experiences of **Tajikistan** transitioning to an IWRM approach, including numerous laws and legislative acts that have been enacted or are in draft. River Basin Organizations are being established as well as mechanisms for a basin-level stakeholder dialogue, and river basin management plans are drafted, such as for the Syrdarya basin. Ongoing work includes the development of a Water Information Centre, the coding of water bodies, and the preparation of a water resources strategy under an interdepartmental working group for water sector reform.
* **Turkmenistan** shared their advancements in better hydro-meteorological monitoring and illustrated how such information is used for more effective management of the Amu Darya river, while recognizing this is a long-term process. Climate-related hazards are increasingly taken into account when preparing the basin water use plan, including water availability and quality aspects.
* With deteriorating water quality from up to downstream parts of transboundary rivers regional collaboration is necessary to ensure water security. A good example of such collaboration are the efforts through the Regional Working Group on Water Quality Monitoring, hosted by Regional Environmental Centre for Central Asia (CAREC). An overview of their achievements was shared, including transboundary monitoring between Kazakhstan and Kyrgyz Republic on the Chu and Talas rivers, and between Uzbekistan and Kazakhstan on the Syrdarya river. Increased water quality deterioration is projected as a result of increasing occurrence of low flows and higher irrigation demand. Other ongoing collaborative work is the harmonization of criteria for water quality assessment of waterbodies and water quality standards. The discussion highlighted the interest of participants to expand and intensify collaboration on water quality management, a problem of increasing relevance due to climate change. It was also highlighted that IWRM is a developing agenda and that more is needed to bring water utilities as a key stakeholder into the water resources management process at basin level, and vice-versa, for utilities to develop their planning in the context of basin management plans.
* A relevant example was shared from the International Association of Water Companies in the Danube Catchment, where utilities were the initiators of regional collaboration among countries to address water quality problems in the Danube.

**Audience Poll Results**

Audience polling revealed that a third of participants found that they have adequate basin collaboration mechanisms (both formal and informal), while a majority did not have such mechanisms or only sought collaboration occasionally to adress ad hoc problems. This shows the importance of a basin-wide approach with institutionalized mechanisms for stakeholder and citizen engagement.

## Session 4: Building Resilience – Lessons and Priorities Going Forward

**Date:**  November 13, 2019

**Time:**  16:00-17:30

**Venue:**  Hyatt, Regency Ballroom

**Moderator:** Susanna Smets, Senior Water Supply and Sanitation Specialist, World Bank

**Session Context and Objective**

By early 2018, following three years of severe droughts and declining dam levels, the City of Cape Town feared a “Day Zero” when water scarcity would force the city to turn off piped supply and ration all residents to 25 lpcd. The session showcased the experience of Cape Town in managing water security – lessons learned from the recent water scarcity crisis, measures taken to avert the crisis and strategy and action plan of the water utility to strengthen its climate resilience to ensure reliable access to water. The keynote presentation was followed by group discussions to reflect on Day 1 presentations and identify priorities for the countries and areas of interest for future capacity building.

**Session Structure**

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| **Time** | **Content** | **Speaker** |
| 16:00-14:05 | Brief introduction | Susanna Smets, Senior Water Supply and Sanitation Specialist, World Bank |
| 16:05-16:30 | South Africa – Managing Water Security for Cape Town | Gisela Kaiser – Water Globe Consultant |
| 16:30-17:30 | Group discussions (per country) and feedback | |
| 11:55-12:15 | Reflections from professionals outside of the region | Alexandra Serra (Portugal), Vladimir Tausanovic (IAWD/Danube region), Gisela Kaiser (South Africa) and Effy Dvir (Israel) |
| 12:15-12:40 | Closing remark | David Michaud, World Bank Water Global Practice Manager for Europe and Central Asia |

**Speakers’ Biographies**

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| **A person posing for the camera  Description automatically generatedGisela Kaiser, Water Globe Consultant (ex- Cape Town Director for WSS)**  Dr Gisela Kaiser is an accomplished management executive and professional civil engineer with 28 years’ experience in development and management of infrastructure projects and programs within a wide range of areas including local government, industrial development, higher education and retail. She served as Executive Director at the City of Cape Town for Water & Sanitation and other utility services from 2012 to 2019, and led the technical response to the impact of the extreme drought in 2017 and 2018. Her passion lies in sustainable development - building a future that is integrated; where complex solutions are beneficial considering all stakeholders, and where development results in increased social justice, equality and environmental stewardship. She is currently consulting in Sustainable Water Management at Water Globe Consultants, LLC, which is headquartered in the US. |

**Session Summary**

* **Gisela Kaiser** shared the experience of Cape Town in the crisis after two years of low water periods and droughts. Mrs. Kaiser pointed to the average global water footprint per person (3,400 liters per day) and highlighted the value of water and the need for appropriate pricing.
* Cape Town has the population of over 4 million people. GDP per capita in South Africa is around US$6,000. The country has high unemployment rate (more than 22%) and inequality (Gini coefficient 0.61). More than 40% people do not pay for utilities. Cape Town is reliant on springs and surface water in rain-fed dams. The dams allow to accumulate and store water. The city is a part of complex integrated water management. The last dam was completed in 2015. The dams are mainly owned and operated by the national department of water and sanitation. Cape Town municipal authorities are responsible for operation of some of the dams. Around 64% of water in the dams is used by Cape Town (70% of which is used for domestic water supply) and only 29% - by agriculture.
* With climate change, floods and droughts occur more often. In 2017, projections of anticipated precipitation did not materialize. Water levels in dams dropped dramatically. The strategy to avoid Day Zero was to focus on three areas: managing dam levels, demand management and augmenting supply. Citizen engagement and communication played an important role in demand management. The utility had to regain the trust of people in local authority and national department. The utility launched a drought-awareness campaign to educate people and draw their attention to wise water use through printed media, radio and social media. The utility increased transparency explaining people what happened with the dams and providing understandable information. The following methods also helped to manage demand: steep increase in tariffs (from US$0.4/m3 to US$2/m3) and consumption control by restricting water use through installation of flow restricting devices at homes of heavy users, leak repair program at household level, metering, pressure management through pressure control valves. Average gross per capita use was halved from 300 lcd in 2014 to 125 lcd in 2018. The efforts resulted in decrease of demand by 55%. The utility is diversifying its water sources to augment water supply and will increase water re-use and desalinization and additional water surface sources. The city is facilitating transition to a water-sensitive city and is committed to supply reliable and affordable water.

**Group Discussion**

Most of the country delegations found Cape Town experience the most interesting and useful. The Kyrgyz delegation highlighted additional topics of interest for: (i) citizen engagement; (ii) crisis management strategy development; and (iii) water consumption and non-revenue water reduction. Kazakhstan delegation was impressed with Uzbekistan Minister’s speech and strong political will of the country to improve water services. Turkmenistan delegation considered the presentation on water quality and monitoring of water quality downstream Amu Darya River was useful. Tajikistan delegation stressed importance of climate change and wanted to learn more about the experience in achieving Sustainable Development Goals. The following priorities were listed by country delegations: reuse of water resources, wastewater treatment, tariff policy, reliable water services for rural areas, metering, transboundary river management, new technologies, value of water, and water quality.

# III. DAY 2, NOVEMBER 14, 2019

## Session 5: Sector Reform and Performance Improvement

**Date:**  November 14, 2019

**Time:**  09:00-10:45

**Venue:**  Radisson Blu Hotel, Grand Ball Hall

**Moderator:** Shavkat Rakhmatullaev, Water Resources Management Specialist, World Bank

**Context and Objective**

The objective of this session was to discuss sector performance improvements

**Session Structure**

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| **Time** | **Content** | **Speaker** |
| 09:00-10:45 | Brief introduction and recap day 1 | Shavkat Rakhmatullaev, Water Resources Management Specialist, World Bank |
| 09:05-09:20 | Uzbekistan: Strategic Development Planning and Innovations for Performance improvements | Kirill Astapov, Moscow State University |
| 09:20-09:35 | Uzbekistan: Innovation in Design in Water Supply and Sanitation Sector | Akram Latipov, director of “Kommunloiha” |
| 09:35-09:50 | The Role of the Regulator in Strengthening Performance and Sector Governance | Ivaylo Kastchiev, Manager and Water and Sanitation Services Director, Energy and Water Regulatory Commission of Bulgaria (Bulgarian Regulator) |
| 09:50-10:05 | Kyrgyz Republic: Performance Improvements in Bishkek Water Utility | Svetlana Zhilenko-Zelenskaya, Head of Operations and Technical Department, Bishkekvodokanal |
| 10:05-10:20 | Benchmarking as a Tool for Performance Improvements | Vladimir Tausanovic, Vice President of IAWD |
| 10:20-10:40 | Q&A with speakers | Moderated by Shavkat Rakhmatullaev, World Bank |
| 10:40-10:45 | Interactive audience poll | |

**Speakers’ Biographies**

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| **Shavkat Rakhmatullaev, Water Resources Management Specialist, World Bank**  cid:image003.png@01D5AAD5.4ABF3AA0Since May 2018, Dr. Shavkat Rakhmatullaev works as Water Resources Management Specialist at World Bank Uzbekistan Country Office. He has more than 15-years of rich work experience in international development with USAID, UNDP, GIZ. He has PhD in Environmental Science from University of Bordeaux 1 and BSc from Colorado State University majoring in Watershed Science. |
| **Kirill Astapov, Moscow State University**  A person wearing a suit and tie smiling at the camera  Description automatically generatedIn 1997, Dr. Astapov graduated with honor from the Moscow State University, Departments of Mechanics, Mathematics and Economics. In 1999 he presented his PhD thesis at Moscow State University. From 2001 to 2009, he worked in the Federation Council Office, Analytical Department, and later in the Federation Council Committee Office, Industrial Policy. In 2007, Dr. Astapov presented his doctoral thesis at Moscow State University. From 2009 to 2013, he was a Head of Department in the Federal Office on Financial Markets. From 2013 to 2018, he worked at the Bank of Russia. In 2019, he graduated the Executive MBA Program at IMD Business School (Switzerland). Since 2019, he is a lecturer at the Center for Strategic Studies of Lomonosov Moscow State University on Strategic Financial Management and Financial Market Strategy. |
| **Akram Latipov, Director of “Kommunloiha”** |
| **Ivaylo Kastchiev, Manager and Water and Sanitation Services Director, Energy and Water Regulatory Commission of Bulgaria**  D:\ДКЕВР\EXTERNAL CONFERENCES\2019_11_13-14-Uzbekistan\IKastchiev.jpgIvaylo Kastchiev holds MBA in City University of Seattle, USA and PhD in Economics and Management in Sofia University, Bulgaria. He has more than 15 years of experience in Water and sanitation services, with 10 years in utility and 5 years in national regulator.  Mr. Kastchiev has worked 10 years in Sofiyska Voda – the biggest water and sanitation utility in Bulgaria, working under concession contract with Sofia Municipality, owned by United Utilities – UK and later on Veolia – France. He was responsible for strategic investment planning, life-cycle asset management, network operations and maintenance, non-revenue water reduction and many others.  For the past 5 years Mr. Kastchiev works in the Energy and Water Regulatory Commission of Bulgaria as manager and Water and Sanitation services director. He is responsible for preparation and execution of all aspects of national regulation of quality and prices of water and sanitation services. |
| **Svetlana Zhilenko-Zelenskaya, Head of Operations and Technical Department, Bishkekvodokanal**  Mrs. Svetlana Zhilenko-Zelenskaya has been working in Bishkekvodokanal Production and Operation Administration since 1985. She worked as 1st and 2nd category Engineer at Production and Technical Department from 1985-2001. In 2001 she was appointed Deputy Head of the Production and Technical Department. Since 2011, she has been the Head of Production and Technical Department at Bishkekvodokanal.  In March 2009, she was awarded a Certificate of Merit of Bishkek City Mayor.  Key skills - Project development and project management, consulting on engineering and economic aspects in water supply and sanitation; drafting regulatory documents in water supply and sanitation; tariff policy development for water supply and sanitation sector. |
| **Vladimir Tausanovic, Vice President of the International Association of Water Supply Companies in the Danube River Catchment Area (IAWD), National Committee Chair to IWA**  C:\Users\PCV\Pictures\2017-02-12\IMG_6312 (2).JPGMr. Tausanovic graduated from the Faculty of Civil Engineering, Department of Water Engineering at Belgrade University. He spent more than 30 years with the Belgrade Waterworks and Sewerage company working both in the wastewater and drinking water field. As a head of various departments was involved in the execution of projects related to water treatment and distribution, groundwater and environmental protection. Since 2000 took office as a Managing Director of the company for 9 years. In that period had been working on further improvement of the company performance introducing international standards and other modern tools and approaches to sustainable development into practice.  At the same time active within the Serbian Water Association, he served as a President for 10 years. Worked on international cooperation between related organizations and institutions being a member of different committees and bodies. Has been a President of IAWD in two terms and Board member since 1995. Consultant in numerous projects regarding water supply and sanitation and participant and speaker at many professional conferences and symposia worldwide. |

**Session Summary**

* Uzbekistan has developed its Water Supply and Sanitation Strategy for 2035 under the guidance and strategic methodology of the international team led by Russian-American scientist, Prof. Vladimir Quint. The strategy acknowledged the impact of climate change, population growth in Uzbekistan by 10 million, and projected substantial GDP growth with more stress on water resources, needs for conservation and efficient use of water resources as well as innovation in the various demand sectors. The plan also highlights that agriculture sector accounts for 92% of the water use. Hence, modernization and innovation in the irrigation sector will have leading impacts on the water resources management. The strategy highlighted the key issues in the water sector including (i) inconsistency in the design of water supply and sanitation schemes; (ii) lack of relevant water supply and sanitation schemes consistent with urban and settlement development plans and (iii) Investment projects are not selected in a systematic and holistic way but, on basis of solving arising issues. Moving forward, the strategy highlighted the need to: (i) increase responsibility for water quality control; (ii)systematization and determination of priorities for the implementation of investment projects in the most problematic regions; (iii) building modern water supply and sanitation management based on a development strategy; (iv) attracting advanced technology to the water sector; and (v) Increased use of public-private partnership mechanisms.
* Uzbekkommunalloyihakurilish was established in 1967 as State Unitary Enterprise (USE). Over this period, it has been able to complete more than 5,000 water supply, sanitation and heating projects. It has seven branches nationwide. The company is engaged in (i) participation in the development of modern science-based technological design regulations using international best practices; (ii) building capacity in design; (iii) promotion of the use of modern and verified design software; (iv) building GIS model of aquifers, and appropriate water wells design configuration; mapping and design layout of SCADA systems; (v) mapping and design of water supply systems; and (vi) utilization of remote sensing and satellite imageries.
* The presentation of the Bulgarian expert **Ivaylo Kastchiev** provided insights into the experience of the water and sanitation sector in Bulgaria. The key stakeholders are: (i) Ministry of Environment and Water; (ii) Ministry of Regional Development and Public Works; (iii) Ministry of Health; (iv) Energy and Water Regulatory Commission; (v) Water Associations; (vi) Local municipalities; (vii) Water and Sanitation Operators (WSOs); (viii) Bulgarian Water Association, Water Services Operators Union, Water Syndicates; and (ix) Ombudsman, Customer Protection Commission, Customer NGOs.
* Activities of the Bulgarian Energy and Water Regulatory Commission in regulation of WS Services includes: (i)regulated services – water supply (potable, non-potable), sewerage, waste water treatment, connection to water and sewerage networks; (ii) regulating quality of the services – through Key Performance Indicators (KPIs); (iii) regulating prices of the services – Rate of Return (Cost Plus) or Price / Revenue Cap; and (iv) ensuring responsiveness to customer complaints and satisfaction. Assets are owned by the public and the operators are managing the services based on 15 to 15 concession contracts. In the price review all costs including the approved investment plan are considered in the price determination after review by the regulator. here are different types and forms of service providers: i) Consolidated regions (1 utility), 24; (ii) Not-consolidated regions (>1 utility), 4; (iii) Concession contract, 1; (iv) Regional state-owned utilities, 28; (v) Local municipal utilities, 11; (vi) Total public utilities, 40; and (vii) Private utilities, 4-5.
* **Svetlana Zhilenko-Zelenskaya** presented the case of one of the largest water utilities in the Kyrgyz Republic. Bishkekvodokanal is a municipal production and operation utility subordinate directly to the mayor’s office of Bishkek. The utility is providing the population, enterprises, and organizations in Bishkek with drinking water, ensuring sewerage and wastewater treatment. Bishkekvodokanal is serving population of around 723,000 with 247,667 customers, collection rate is around 100% (99.9%), supply rate is around 460l/capita/day. Demand in summer reaches almost twice winter demand. Key issues: (i) very old assets; (ii) low investment budget. Repair and rehabilitation investment needs are around KGS 3.0 billion. However, annual budget is less than KGS0.03 billion (clear underinvestment) while it should be in the range of KGS 0.2 billion for the coming 15 years; (iii) low per capita residential consumption (around 100l/c/day); low capacity of the utility; tariff is very low; (iv) high leakage and (v) low salary and lack of incentives.
* Way forward: Effective Nov 15, 2019, tariff for water supply and sewage services increased by around 50%. This will lead to operation revenue ratio to reach 1.08 from the current situation of 0.89. In addition, the utility adopted connection fee policy. The utility has plan to meter all customers. The plan is to install smart meters with tele-reading capacity. Moreover, NRW reduction and Energy Efficiency plans are being implemented to improve the financial viability and hence the sustainability of WSS service provision. This helped Bishkek to mix its financing through tariff revenues, grants, and sovereign loans.
* **Vladimir Tausanovic** presented the experience of the International Association of Water Service Companies in the Danube River Catchment Area, which was established in 1993, membership of 25 water utilities in 9 countries, 13 extraordinary members including water utility associations and 9 additional supporting members. To perform its functions in improving the services and disseminate information the IAWD is using various hubs including DANUBIS = Danube Utility Benchmarking and Information Sharing, launched in 2014. This platform contains data on 600 utilities from 15 countries over 23 years based on the International Benchmarking Network (IBNet). In addition, IAWD is partnering with the Utility Benchmarking Hubs (UBH) and communication is carried out through the Hub coordinators for participating countries. An annual Hub workshops are convened to exchange ideas and challenges for better improve the services and benchmarking systems in the Danube region.
* DANUBIS Data Collection and Management Platform is a web-based interface allowing “managing institutions” in each country to collect, validate, analyze, manage and share utility performance data and indicators within their country; and fully customizable including the list of variables and indicators, language, frequency of data collection, data sharing mechanisms etc.

**Audience Poll Results: Where do we stand on sector and utility reform, benchmarking**

To the question on whether the organizations have a realistic strategy/plan (but not only infrastructure) to improve performance of the utility/of the sector and measure performance indicators, the majority (56%) partly agreed indicating that they lack support and resources to implement the plan. One third (32%) think that they monitor performance indicators on a regular basis while few participants indicate that that their organizations do not have a plan or strategy.

According to the participants, the biggest hindrance to improving the performance of the water supply and sanitation sector is:

* Lack of investment funds (40%)
* Hindering legal and institutional arrangements of the sector (25%)
* Limited incentives and lack of autonomy to improve performance (15%)
* No adequate economic and quality regulation and monitoring (10%)
* Skilled staff and human resource management (10%)

## Session 6: Universal Access: How to Reach Rural Areas

**Date:**  November 14, 2019

**Time:**  11:15-12:45

**Venue:**  Radisson Blu Hotel, Grand Ball Hall

**Moderator:** Farzona Mukhitdinova, Water Resources Management Specialist, World Bank

**Context and Objective**

Population of Central Asian countries still remains predominantly rural with higher demographic growth rates. Rural areas appear to be underserved both in terms of access to WSS and the level of services provided. The objective of the session was to increase awareness on rural water services in the Central Asian region and discuss different experience of Central Asian countries in sector development, various types of rural water management, and recommendations on how to improve quality of water services for rural population.

**Session Structure**

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| --- | --- | --- |
| **Time** | **Content** | **Speaker** |
| 11:15-11:20 | Brief introduction | Farzona Mukhitdinova, Water Resources Management Specialist, World Bank |
| 11:20-11:35 | Kyrgyz Republic: Delivering and Managing Rural Water Services; Creating Sustainable Municipal Enterprises and the Importance of Monitoring Systems | Kubanychbek Bostonbaev, Project Coordinator, ARIS |
| 11:35-11:45 | Tajikistan: Approach on Rural Water Supply and Sanitation | Farzona Mukhitdinova, Water Resources Specialist, World Bank |
| 11:45-12:00 | The experience of the “Rural Water Supply and Sanitation Projects in Central Asia” | Olivier Normand, International Secretariat for Water |
| 12:00-12:15 | Portugal: The Journey towards inclusive service delivery in Portugal for water and sanitation | Alexandra Serra, Aguas Portugal |
| 12:15-12:40 | Q&A with speakers | Moderated by Farzona Mukhitdinova, World Bank |
| 12:40-12:45 | Interactive audience poll | |

**Speakers’ Biographies**

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| **Kubanychbek Bostonbaev, Project Coordinator, ARIS,** **Sustainable Rural Water Supply and Sanitation Development Project**  Kubanychbek Bostonbayev is a coordinator of the Sustainable Rural Water Supply and Sanitation Development Project implemented by the Community Development and Investment Agency (ARIS) in the Kyrgyz Republic. He began his career in 1990 as a foreman of Frunzestroy’s construction site. Later he held various managerial positions and in 2002-2006 headed Frunzestroy’s construction site 7. He also has significant experience in administering contracts under international projects. From 2006 to 2019, he was an engineer/contract administrator in ARIS’s Bishkek and Osh Urban Infrastructure Project and Urban Development Project. Since April 2019, Kubanychbek Bostonbayev has been a coordinator of the Sustainable Rural Water Supply and Sanitation Development Project. He administered major contracts such as Osh Water Supply Rehabilitation, which provided access to clean drinking water for over 55,000 people, and Bash-Karasuu Water Intake and Water Mains from the Water Intake to the Ak-Ordo New Development in Bishkek, which connected over 110,000 residents of Bishkek to clean drinking water. Kubanychbek Bostonbayev holds a degree in civil engineering from the Frunze Polytechnic Institute. |
| **Farzona Mukhitdinova, Water Resources Management Specialist, World Bank**  A person smiling and posing for the camera  Description automatically generatedFarzona Mukhitdinova, Water Resource Management Specialist at the World Bank office based in Dushanbe, Tajikistan from 2017.  Earlier Ms. Mukhitdinova worked as an Operations Analyst.  Farzona covers all aspects of the Water program in Tajikistan and selectively in other Central Asian countries.  Farzona has a Master’s degree in Public Policy from the Lee Kuan Yew School of Public Policy (Singapore) with a focus on Water, Energy and Environment and a Master's degree in Economics from the Technological University of Tajikistan |
| **Olivier Normand, International Secretariat for Water**  Olivier Normand holds Master’s degree in law and Master’s degree in social sciences (economics sociology and political science). Worked for ten years in the field of Political Science both as a researcher and as a consultant. Then moved, thirty years ago, to the development field, mostly on economic development in rural areas out of which the last fifteen years in the water sector.  Since 2007, representative of the International Secretariat for Water, a Canadian international NGO, in Central Asia, managing projects on Rural Water Supply and Sanitation, in Uzbekistan and in Tajikistan. Projects aim at improving the living and health conditions of rural communities through enhanced access to safe drinking water and promoting the adoption of better hygiene and sanitation practices among population. Full cost recovery is one of the key features of the approach proposed in the projects together with strong hygiene and sanitation components. |
| **Alexandra Serra, Board Member at Aguas de Portugal International, President of the Portuguese Water Partnership**  Alexandra Serra is an executive manager, with more than 25 years of experience in the public and private water sector and a wide experience in international markets, having participated or coordinated projects in Morocco, Algeria, Angola, Mozambique, Cape Vert, Brazil and Guinea-Bissau. Her main professional experience is related to water supply and wastewater utilities and engineering consultancy in the fields of Water Resources and Water Services. She has a MSc in Civil Engineering, with the thesis “*Financing Models in Water Services Enablers of Infrastructure’s Asset Management Best Practices*”.  Her managerial carrier began in 1998, at the multinational DHV Group, where she was the Water and Environment Business Unit Director at FBO-DHV subsidiary in Portugal. After 2001, at AGUAS DE PORTUGAL GROUP, she had different managerial positions: responsible for the Investments Planning and Control Corporate Unit, Engineering Director and Executive Board Member of the AdP Shared Services company, with direct responsibilities in Information Systems, Engineering and Marketing and Communication.  Presently, she is board member at Aguas de Portugal International, the company responsible for the international activities of Aguas de Portugal Group. She is the President of the Portuguese Water Partnership, a platform for the internationalization of the Portuguese Water Sector. In 2010-2011 she was President of the Portuguese Water Resources. In 2008, she was appointed Portuguese Commissioner to the 5th World Water Forum by the Portuguese Environmental Minister. |

**Session Summary**

* **Mrs. Mukhitdinova, World Bank Water Resources Management Specialist** based in Dushanbe, provided an overview of the rural water supply subsector challenges. In the last two decades support to infrastructure rehabilitation was provided by international financial institutions and there was no unified vision on rural sector. In some Central Asian countries, the sector is fragmented; there is no systemized approach and decisions are made outside the systems. The following common challenges are shared by all countries in the region: (i) low access to safely managed water in rural areas; (ii) deteriorated infrastructure built in 70-80-s that needs rehabilitation; (ii) underfunding and lack of adequate sector regulation; (iii) lack of data on existing water supply systems; (iv) higher vulnerability to external shocks and climate change; and (v) higher costs incurred by population due to limited access to water supply and remoteness.
* In global rural water supply, there are different models of water management at local level: community-based management, direct local government provision, public utility, private sector provision, or supported self-supply. These management models exist in all Central Asian countries; but they are regulated differently and have different performance levels.
* **Mr. Bostonbaev, Project Coordinator of Community Development and Investment Agency (ARIS)**, presented Kyrgyz experience in development and reconstruction of rural water supply and sanitation systems in the Kyrgyz Republic. Rural water supply is set as priority in the Kyrgyz Republic. The Government adopted Taza-Suu program to improve water services and sanitation in rural areas. ARIS is implementing three rural water supply projects under Taza Suu program supported by the World Bank, Islamic Development Bank, Saudi Development Fund, and Asian Development Bank. The World Bank-financed Sustainable Rural Water Supply and Sanitation Development Project aims to cover over 200,000 people in 91 villages through infrastructure rehabilitation and construction. In addition to infrastructure investments, the project focuses on institutional strengthening at both national and local levels and sanitation development, which includes support to sanitary epidemiological services, incentive-based grants for households for sanitation improvement and reconstruction of sanitation facilities at schools. At local level, the project is supporting creation of municipal enterprises and local governments and water utilities through trainings in commercial and financial management, operation and maintenance, public awareness campaign, introduction and installment of billing systems, water metering, and providing toolkits and equipment for service providers. Sustainable service providers are important and technical support should be provided at the national level for capacity building. The project is also promoting setting consumption-based and cost-recovery tariffs through trainings. At national level, the project will develop an Institutional Support Plan, support professional development, pilot aggregated models of management and roll-out a national monitoring and evaluation system (SIASAR).
* SIASAR includes 12 member countries in Latin America and Kyrgyz Republic. Uganda and El Salvador are new SIASAR member countries. The rural monitoring system will help the Department of Water Supply and Wastewater Disposal to monitor performance of different service providers at local level and inform decision-making. The system monitors data about water supply systems, service providers, sanitation and hygiene in communities and social facilities such as schools and health centers. Technical assistance providers are organizations that provide financial, technical or other support to service providers. In the Kyrgyz Republic, they are the Department of Water Supply and Wastewater Disposal and municipalities. SIASAR uses a A-D rating system. Data entry can be done on paper, on the website and in mobile application. To date, the system collected data for 28% of total villages covering more than 1 million people in Chui and Osh regions. The system provides an interactive map where all data can be accessed online on the website: [www.siasar.org](http://www.siasar.org).
* **Mrs. Mukhitdinova** gave an overview of the rural water supply and sanitation sector in Tajikistan. Analytical diagnostics of the sector and poverty was carried out as there was no consolidated data on rural water supply. The access to safely managed water in rural areas in Tajikistan remains low. The level of service does not depend on the level of income but more on the location and proximity to urban areas. At national level, 62% of population have access to water, which includes cities. At rural level, access is around 40%. A significant gap exists in terms of the quality and level of water services between urban and rural areas. The Government of Tajikistan is implementing reforms in the water sector in line with the national program for 2016-2025 and Strategy of the Water Sector until 2030. The Government has recently adopted a law on drinking water supply and a national a program for improvement of water supply for 2008-2020. KMK is a national state unitary enterprise that is implementing both a water supply policy and service provision. A rural water supply project financed by the World Bank was approved but is not effective yet. It has infrastructure improvement and institutional development components. At national level, a monitoring system will be established and a master plan for the whole sector will be developed. Citizen engagement campaigns to promote water conservation will be conducted. Effectiveness of water management models will be assessed. KMK will play a role of the hub. The system is very fragmented. Under KMK, 13 water utilities provide services only to 28% of the population. There is no single systemized approach in the country. Water utilities in Tajikistan are limited in setting tariffs within the limits while the tariff policy applies differently to the community-driven models.
* **Mr. Normand from the International Secretariat for Water** shared experience of decentralized model of rural water supply in Tajikistan and Uzbekistan. People in rural areas pay more than people in urban areas. The International Secretariat for Water started work since 1990-s in the Kyrgyz Republic and has implemented projects in Ferghana Valley in Tajikistan and Uzbekistan covering more than 220,000 people. Financing (around $20 million) was provided by the Swiss Agency for Development and Cooperation. The projects promoted decentralized management by setting up drinking water organizations where communities are responsible for water supply and participate in decision-making, financial transparency and sustainability (full cost-recovery). Such organization are established where around 85% of the community should agree to the model and pay membership fees. The tariff includes depreciation and investment cost. A lot of work is performed in hygiene and sanitation together with the Ministries of Health and Education. The projects had also sanitation component with the objective to improve sanitation systems – septic tanks (Ecosan). The system can provide services to several villages and has bulk metering. Drinking water organizations can agree with water utilities for bulk supply of water. The systems have simple design due to rural nature of the system. Village general assembly elects a management board and a revision committee. The management board recruits an executive committee, which manages the system and reports to the management board. Ms. Makfirat Abdullaeva presented a case of multi-village system in Sughd region of Tajikistan where Isfara water utility provides bulk water supply to villages. She noted that population is willing to pay the tariff which includes cost of bulk supply, operation and maintenance and depreciation. Such tariff allows to ensure sustainable water management. The cost of such projects is around $50-60 per capita. Legal environment is important for alternative water systems. For example, in Uzbekistan new decrees were adopted that allow alternative models.
* In cases where there is no direct water source for local systems, villages can connect to trunk mains and buy water in bulk from water utilities. One of the advantages is that community-based service providers can agree a tariff approved by the community.
* **The case of centralized model was presented by** **Mrs. Alexandra Serra** on the example of Portugal. Aguas Portugal is a national 100% state-owned holding with different business units including water and wastewater services, international division, energy unit and others. It was founded in 1993 with the mission to design, build, operate and manage water supply and wastewater systems in a framework of economic, social and environmental sustainability. Aguas Portugal has 13 companies that provides quality water services to around 8 million (80% of total population) people in Portugal. Aguas Portugal has about 3,100 employees. The situation 25 years ago was different. Portugal has around 300 municipalities. The country had fragmented municipal operators that provided low quality of water services (intermittent supply, inefficiency, no professional management, lack of sufficient financial and human resources and technical staff at the municipalities). Access to safe water was around 50%. It was not possible to attract private investments because of low tariffs. Only a small part of the costs were recovered through tariffs. An exception was EPAL, public water service operator for around 20 municipalities in Lisbon areas, which was performing well. The reform in 1993 based on the experience of EPAL and with support of European Union grants transformed the sector. A new multi-municipal management model and new regulatory framework were developed. Six key areas of the reform included corporatization (professional management in utilities), segmentation, aggregation/consolidation, privatization, regulation, and central state participation. Regional companies were set up where 51% are owned by Aguas Portugal and 49% - by municipalities under concession contracts (build and operate) with full-cost recovery tariffs regulated by the national regulator. First, priorities were to improve water and wastewater services in metropolitan areas. Five multi-municipal countries were created, and master plans were developed. By 1999, good results of the model were achieved. National strategic planning in 2000 refined the roadmap for the second phase of the multi-municipal systems. In 2000-2007, Aguas Portugal spread the successful model to all areas. The European Union funds helped construct and rehabilitate large and small-size systems. The approach for rural areas was based on Integrated management of small systems. Small systems were merged with urban areas.
* In rural areas, rural infrastructure improvements were subsidized. Decentralized systems in rural areas were managed by regional water companies that made it possible to spread the cost among urban and rural customers and introduce full-cost recovery but affordable tariffs. Investment plans followed standardized approach and standard drawings and procurement documents were prepared for rural systems less than 2,000 inhabitants. A decision support tool was developed that helped find the best technical and economic solution for decentralized systems.
* **Key success factors based on the experience of Portugal include**: (i) institutional reform takes time – it tool almost 25 years in Portugal; (ii) political will and good leadership are important for reforms to happen; (iii) corporatization in such sensitive and specialized sector as water services is important; (iv) sustainable cost-recovery is a must; (v) water and wastewater services should be delivered by the same entity; (vi) water services should have scale and provided by regional, not local entities; (vii) benchmarking is important to ensure transparency of the process; and (viii) central state and municipalities should cooperate and provide support to capacity building and professional development.

**Key messages of the session:**

* Different service models can operate in the countries in parallel.
* The role of the national authority is important in regulation and monitoring of the sector, and in supporting sustainability of rural service providers.
* Sustainable management of services needs full-cost recovery tariffs and technical support from the national authority.
* Revision of construction standards and norms in Central Asian countries is very important to allow development of low-cost rural sector.

**Audience Poll Results**

To the question on rural versus urban water services, 80% of respondents think that their countries are accelerating investments to improve equality between urban and rural areas

Participants think that the greatest challenge to improve services in rural areas is:

* My country lacks a strategy or plan that targets rural areas - 40% of respondents
* Insufficient support to service providers in rural areas - 30%
* Lack of clarity on which entity/entities are responsible for rural water and sanitation - 20%.

## Session 7: Towards Mobilizing Commercial Finance

**Date:**  November 14, 2019

**Time:**  14:00-15:45

**Venue:**  Radisson Blu Hotel, Grand Ball Hall

**Moderator:** Khairy Al-Jamal, Senior Water Supply and Sanitation Specialist, World Bank

**Context and Objective**

This session discussed the enabling environment and key drivers for private sector engagement. The moderator introduced the concept of the Utility Turnaround Framework, discussed water service sustainability, financial viability, operational and financial efficiencies, and ladder of maturity that help identify needs to access commercial finance. Speakers shared experience of tariff reforms in Uzbekistan and Israel, and lessons of a private water utility in Kazakhstan.

**Session Structure**

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| --- | --- | --- |
| **Time** | **Content** | **Speaker** |
| 14:00-14:10 | Brief introduction and Framework of Progress Towards Financial Viability | Khairy Al-Jamal, Senior Water Supply and Sanitation Specialist, World Bank |
| 14:10-14:25 | Uzbekistan: progress on tariff reform in water supply and sanitation sector | Zukhriddin Zaynitdinov, MHCS of Uzbekistan |
| 14:25-14:40 | Kazakhstan: lessons from private sector participation in WSS | Anarbek Orman, Chairman of Board, Water Resources Marketing LLP |
| 14:40-15:00 | Israel’s experience with water corporation models, tariff reform and commercial finance | Effy Dvir, Commissioner, Israel Water Authority |
| 15:10-15:45 | Panel discussion with speakers | Moderated by Khairy Al-Jamal, World Bank |
|  | Interactive audience poll | |

**Speakers’ Biographies**

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| **Khairy Al-Jamal, Senior Water Supply and Sanitation Specialist, World Bank**  Dr. Al-Jamal has been based in the World Bank office in Uzbekistan since September 2019. He has more than 29 years of experience in water and wastewater infrastructure engineering design, hydraulic modeling supervision, planning, program management and project management. In addition, he led multidisciplinary teams in water resources strategic planning; water sector reforms including policy and regulation formulation and promotion of appropriate institutional setup; and utility development and turnaround as well as portfolio buildup and management. On the other hand, given his qualifications in the energy sector, Mr. Al-Jamal led strategic projects and technical assistance in the energy sector. **A person wearing a suit and tie  Description automatically generated**During his career, he worked for government, international organization and attained good experience in donor coordination and harmonization.  Mr. Al-Jamal joined the Bank in 2004 and helped to prepare and supervise number of projects and studies in water, sanitation, urban, mining and geothermal energy in many countries including Nigeria, Mongolia, China, Indonesia, Lebanon, Yemen, Egypt and the Palestinian Territories. He has Post Doctorate in Water Systems Design and Optimization from University of Cambridge, UK; PhD and MSc in Renewable Energy Resources from University of Reading, UK and BEng of Mechanical Engineering from Birzeit University, Palestine, and has a rich publication record of more than 25 scientific papers, article and reports in the water and energy sectors. |
| **Zukhriddin Zaynitdinov, MHCS of Uzbekistan** |
| **Anarbek Orman, Chairman of Board, Water Resources Marketing LLP**  Mr. Anarbek Orman began his professional career in 1970 and has been in the sector for 49 years. He held managerial positions with Shymkent’s Vodokanal and Water Resources-Marketing. From 1995 to 1997 and from 2006 to 2008, Mr .Orman was the Akim (mayor) of Shymkent. In 2009-2012, he chaired the Water Resources Committee of the Ministry of Agriculture of Kazakhstan.  Mr. Orman holds a candidate of technical sciences degree. He is a citizen of honor of Shymkent, Turkestan and South Kazakhstan Oblast, and was awarded the Kurmet, Parasat, and Dostyk (Second Class) Orders from the Government of Kazakhstan. At present, Mr Orman chairs the supervisory board at Water Resources-Marketing. |
| **Effy Dvir, Commissioner of Water and Sewage Services Corporations, Israel**  Mr. Effy Dvir is The Commissioner of Water and Sewage Services corporations. He is responsible for carrying out all the actions required pursuant to the Water and Sewage Corporations Law, in accordance with the instructions and guidelines of the Water Authority.  Mr. Dvir is responsible for implementation of corporate governance provisions in the water and sewage corporations and associations of cities for sewage. As part of his responsibility, he assists in definition the government policy of water and sewage systems in local authorities. |

**Session Summary**

* **Mr. Khairy Al-Jamal, World Bank Senior Water Supply and Sanitation Specialist,** provided a short overview of the framework towards financial viability. For financial viability and service sustainability, utilities should fully creditworthy. For any service to be sustainable, it has to be resilient and efficient and has good quality. Operational and financial efficiencies are interconnected. Cost recovery is basis for financial viability. The objective is to maximize regulated tariff revenues and understand and minimize costs – reduce NRW, apply energy efficiency technologies, optimize processes. The diagram in the presentation showed activities with high impact and low cost such as NRW pilots, District metering areas, staff training, financial systems. Access to commercial financing is important to support universal access, increase efficiency and achieve sustainability and allows reducing public debt burden. The maturity ladder below developed by the World Bank proposed steps for each stage of maturity of the utility.



**Figure. Maturity Ladder for the Urban Water Sector**

* **Mr. Zaynitdinov from the** **MHCS of Uzbekistan** gave an overview of the WSS sector in Uzbekistan and the recent tariff reform. Before the new tariff regulation, there existed almost 200 different tariffs in the country and energy costs accounted for almost 50% of the operating costs. A unified approach was introduced where each province approves a single tariff for the province. The utilities carried out inventories of customer databases. The Ministry introduced an automated unified billing system. Uzbekistan has still one of the lowest tariffs in the world - $0.08 per 1 m3. In April 2019, the Cabinet of Ministers approved the new regulation on the tariff setting procedure which became effective from January 1, 2020. The main principle of the new regulation is full cost recovery which takes into account investments needed for modernization and rehabilitation of infrastructure. Savings from energy-saving technologies will be accumulated for capital investments (50%) and employee incentive fund (50%). Profit margin of 10% was removed. Unlike the previous procedure where utilities prepared tariff applications independently, the MHCS will be involved to analyze tariff calculation and coordinate with the Ministry of Finance.
* **Mr. Anarbek Orman, Chairman of Board, Water Resources Marketing LLP,** shared experience of Shymkent water utility which provides services to Shymkent households. The company was supported by EBRD loans in 2009-2018 and managed to repay the principal and interest. The company increased the customers database and increased metering rate to 100%. It also implemented water control program to reduce leakages and manage pressure in the system, installed energy-saving technologies replacing energy-intensive pumps and using renewable energy sources for power generation for operation of the systems. Water consumption was reduced from 456 l/day to 130 l/day. The tariff is $0.2 per 1 m3m, which is twice as low as a 1l bottle of water. The company has plans for continuous water supply 24/7, improving customer relations, establishing a training center and capital investments for rehabilitation. The company’s financial statements are prepared in accordance with the IFRS.
* **Mr. Dvir**, **Commissioner of Water and Sewage Services Corporations of Israel,** shared the Israel approach to WSS management. Local authorities used to be responsible for WSS in Israel. In 2000, the analysis of the WSS sector showed high water loss rates, significant shortage of investments in infrastructure, inefficient management of water systems and lack of sewerage solutions. In 2001, a law on W&S corporations was approved. W&S corporations operated as business entities and were responsible for infrastructure. At present, 56 corporations in Israel provide services to 7 million consumers. After 4-5 years of operation of W&S corporations, water losses decreased dramatically to less than 10%. Water tariff is uniform for domestic consumers and is set to enable to cover W&S corporations’ operating costs. W&S corporations buys bulk water at the price based on certain criteria.

A group of people sitting at a table

Description automatically generated**Audience Poll Results**

Multiple choice . In my view, using the maturity ladder for urban water sector, my country is at:

* + Stage 1: battle inefficiencies (understand barriers for reform)
  + Stage 2: build capacity (invest in people and information)
  + Stage 3: align institutions and incentives
  + Stage 4: incentivize performance for private and public sector
  + Stage 5: Go to market (less public, more private money)

The majority of respondents think that their organizations are in Stage 2 (40%) and Stage 1 (30%).

## Session 8: Regional Collaboration and National Capacity Building for WSS

**Date:**  November 14, 2019

**Time:**  16:10-17:30

**Venue:**  Radisson Blu Hotel, Grand Ball Hall

**Moderator:** Susanna Smets, Senior Water Supply and Sanitation Specialist, World Bank

**Context and Objective**

The session focused on the importance of capacity building and professional development of water utility staff and avenues of collaboration which could be institutionalized through utility associations or could be supported by communities of practices or networks of professionals. Case studies of regional and national utility associations were presented to learn about benefits of setting a utility association. The International Association of Water Service Companies in the Danube River Catchment Area provides mechanisms for information and knowledge exchange between sector professionals of the countries in the Danube region and facilitates capacity building and peer-to-peer communication through regional initiatives such as Danube Learning Partnership. Kazakhstan as the only country that has a national utility association, shared their experience and role of the association in supporting its member entities, sector analysis, regulatory activities and capacity building. Group discussion allowed understanding of country priorities in capacity building and sharing views on what ways of collaboration are the most effective. The session also provided an overview of a sanitation compendium developed with support of Swiss partners that can be used in capacity building programs.

**Session Structure**

|  |  |  |
| --- | --- | --- |
| **Time** | **Content** | **Speaker** |
| 16:10-16:20 | Brief introduction | Susanna Smets, Senior Water Supply and Sanitation Specialist, World Bank |
| 16:20-16:35 | Lessons and capacity building program in the Danube Region | Vladimir Tausanovic, Vice President of IAWD |
| 16:35-16:50 | Kazakhstan: Role and benefits of Kazakhstan’s utility association | Valeriy Syundyukov, President of the Association of Water Supply and Sewerage Enterprises of Kazakhstan |
| 16:50-17:05 | Announcement of Water and Sanitation Compendium for Central Asia | Shamshod Yunusov, NGO Taraqqiet |
| 17:05-17:35 | Group discussion | |
| 17:35-17:40 | Interactive audience poll | |

**Speakers’ Biographies**

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| **A person smiling for the camera  Description automatically generatedSusanna Smets, Senior Water Supply and Sanitation Specialist, World Bank**  Mrs. Smets joined the World Bank in 2011, working on water sanitation in East Asia and Pacific. Currently, she is working in Eastern Europe and Central Asia, including Moldova, Tajikistan and Kyrgyz Reublic. As part of the Danube Water Program, she was leading a regional study in seven countries in the Danube Region on rural water and sanitation services, as well as a multi-country study on sustainability of rural water services. She has over 15 years of professional experience in water supply, sanitation and water resources management. Prior to joining the World Bank, she worked in the Middle East, Asia and Europe for GiZ, DFID, the private sector and a Dutch water utility. She has a master’s degree in water resources management from Wageningen University (Netherlands) and a Master of Business Administration from the Open University (United Kingdom). |
| **Vladimir Tausanovic, Vice President of the International Association of Water Supply Companies in the Danube River Catchment Area (IAWD), National Committee Chair to IWA**  C:\Users\PCV\Pictures\2017-02-12\IMG_6312 (2).JPGMr. Tausanovic graduated from the Faculty of Civil Engineering, Department of Water Engineering at Belgrade University. He spent more than 30 years with the Belgrade Waterworks and Sewerage company working both in the wastewater and drinking water field. As a head of various departments was involved in the execution of projects related to water treatment and distribution, groundwater and environmental protection. Since 2000 took office as a Managing Director of the company for 9 years. In that period had been working on further improvement of the company performance introducing international standards and other modern tools and approaches to sustainable development into practice.  At the same time active within the Serbian Water Association, he served as a President for 10 years. Worked on international cooperation between related organizations and institutions being a member of different committees and bodies. Has been a President of IAWD in two terms and Board member since 1995. Consultant in numerous projects regarding water supply and sanitation and participant and speaker at many professional conferences and symposia worldwide. |
| **Valery Syundyukov,** **President of Kazakhstan Su Arnasy – Association of Water Supply and Wastewater Disposal Utilities of the Republic of Kazakhstan**  Valery Syundyukov was born in 1957 in the village of Shortandy, Akmola Oblast. Since 1964, he has lived in Nur-Sultan (formerly Astana, Tselinograd). In 1964-1974, he studied at a secondary school in Tselinograd, and in 1974-1979 at the Tselinograd Engineering and Construction Institute where he specialized in water supply and sewerage facilities and obtained a degree of a civil engineer. In 1979-1981, Valery Syundyukov worked as a foreman at an industrial site of Tselinogradsantekhmontazh (Tselinograd Construction Department).  In 1981-1982, he headed the office of a republican Komsomol shock construction project. In 1982-2002, he worked at various positions with Gorvodokanal/Astana Su Arnasy (from foreman to supervisor, head of production technology, deputy operations manager, and first deputy general director). Since 2002 and to date, Valery Syundyukov has been the president of Kazakhstan Su Arnasy – the Association of Water Supply and Wastewater Disposal Utilities of the Republic of Kazakhstan. In 2009, he was an acting deputy chair of the Water Resources Committee at the Ministry of Agriculture of Kazakhstan. |
| **Shamshod Yunusov, Сo-founder and Project Team Leader, NGO Taraqqiet**  A person wearing glasses and smiling at the camera  Description automatically generatedСo-founder and project team leader at the NGO "Center for Support and Development of the Communities Taraqqiyot" He is currently engaged in improvement of the infrastructure gaps at grassroots through in community mobilization and civic engagement to decision-making. He has many years of experience in participatory improvement of the state of drinking water and sanitation in the villages of Uzbekistan within the frames of the Swiss Funded Rural Water supply and Sanitation Project in Uzbekistan implemented by the International Secretariat for Water (ISW), Canada. |

**Session Summary**

* **Mr. Tausanovic, IAWD Vice President,** presented Danube Water Program implemented together with the World Bank with the support of the Austrian Government. Its objectives are to improve efficiency and quality of WSS services in the region, strengthen technical and managerial capacity of utility and institutions’ staff and develop regulations and policies in the sector. IAWD analyzes sector performance and develops “state of the sector” reports. IAWD had utilities as their members and managed to include national associations as extraordinary members. IAWD organizes annual conference with around 900 participants from more than 20 countries. The idea of launching D-LeaP initiative was in peer-to-peer learning. D-LeaP structure includes the IAWD Committee Council, technical partners and utilities. Technical partners develop diverse learning and capacity building programs (NRW, commercial efficiency, energy efficiency, asset management, etc.) at regional level and train local trainers/national water associations who deliver trainings to utilities in local language. Utilities pay a fee for the training programs. D-LeaP initiative trained 337 utilities.
* **Mr. Syundyukov, President of Kazakhstan Su Arnasy – Association of Water Supply and Wastewater Disposal Utilities of the Republic of Kazakhstan** provided a background of the Kazakhstan national utility association. It was established at the initiative of water utilities in 2002 when there was no public authority responsible for policy and regulation in water supply and sanitation. At that time, the regulatory framework was outdated, there was no law on WSS, tariffs did not cover operation costs; water utilities were disconnected. At present, the Association has 85 members including water utilities, design organizations, manufacturers and suppliers of equipment and materials. The Association protected service providers’ rights and initiated more than 30 regulations or amendments to the regulatory framework. It was also involved in development of professional standards and promoted professional degree specialization for civil engineers in the water sector. The Association carries out analytical work, publishes a monthly specialized journal and organizes an international exhibition and conference once in two years. With WSS infrastructure modernization projects with external investments, the Association is helping utilities to develop funding options, borrowing mechanisms and fund raising. Since 2007, the Association is supporting collection of performance indicators in IBNET.
* **Mr. Yunusov** **Сo-founder and Project Team Leader, NGO Taraqqiet** presented a sanitation compendium developed by Swiss Federal institute of Aquatic Science and Technology and University of Applied Sciences and Arts. The compendium suggests five main functional groups and provides description for each group. The compendium has two parts and includes templates and resources for each technology. It also offers technical solutions for rural and urban areas. Several pilots were implemented, e.g., dry ECOSAN toilet at school in Ferghana province, flush toilet at school in Namangan province. The compendium is a helpful tool to design sanitation systems taking into account inputs, outputs, technologies and other resources.

The Russian version of the sanitation compendium can be downloaded: <https://www.eawag.ch/fileadmin/Domain1/Abteilungen/sandec/schwerpunkte/sesp/CLUES/Compendium_2nd_pdfs/russian_compendium.pdf>

**Audience Poll Results and Group Discussion**

For future follow-up activities the majority of respondents (75%) prefer combination of country-level and regional-level events.

The following topics and themes were preferred by participants:

* Tariff setting and regulation
* Sector reform and governance
* Resilience planning for utilities
* Rural water supply and sanitation
* PPPs and commercial financing
* Water quality and wastewater treatment
* Communication and citizen engagement

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To the question on what they think would be the best way for collaboration and knowledge sharing, several delegations mentioned that the development of a utility association, as in the case of Kazakhstan, may be difficult to realize in the short-term, mostly due to sustainability concerns.

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All country delegations agreed that technical capacity building of staff in design, construction, operation and maintenance and application of and investments in new technologies is important. This could be achieved through, for example, training centers as in Uzbekistan, retraining and on-the-job training programs, systematized training programs in higher educational institutions such as University for education of students for communal sphere including WSS in Turkmenistan. “Kazakhstan Su Arnasy” and Turkmenistan are planning to attract international centers, institutes for professional development of the utilities’ capacity, for example, science center “Manjob” (Israel).

## Closing Session

**Date:**  November 14, 2019

**Time:**  17:40-18:00

**Venue:**  Radisson Blu Hotel, Grand Ball Hall

**Session Structure**

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| --- | --- | --- |
| **Time** | **Content** | **Speaker** |
| 17:40-17:50 | Closing Remark | David Michaud, World Bank Water Global Practice Manager for Europe and Central Asia |
| 17:50-18:00 | Closing Remark | Muzaffar Saliev, Minister of Housing and Communal Services, Uzbekistan |

* In the closing session, **Mr. Michaud** congratulated on the successful intensive two-day conference. He expressed appreciation to the Ministry of Housing and Communal Services of Uzbekistan for hosting the event and thanked organizers and contributors for the joint efforts to make the event happen. Mr. Michaud is looking forward to continued dialogue with the countries. Following the conference, the World Bank team will propose an action plan for follow-up activities and will agree with the countries on the next steps. Mr. Michaud encouraged the country delegations to reach out to the World Bank staff if they have further ideas for technical assistance.
* **Minister Muzaffar Saliev** thanked the neighboring countries for participation and openness and thanked speakers for sharing their expertise and international best practices. The conference united the countries and showed that exchange of knowledge and continued learning is important. Despite differences in economic development and sector organization, there are common challenges such as tariff policy and professional development that are shared by all countries. The conference confirmed that the Ministry of Housing and Communal Services is pursuing the right direction. Water is life and water supply sector professionals are entrusted with a high responsibility to supply drinking water to the people. Water is one of the basic human rights. Water supply is a critical social issue and public utilities affect the mood of the society. The sector needs to adapt to climate change impacts taking into account projections for 50 years. The Minister is looking forward to continuing exchange of knowledge with policy makers and sector professionals and wished all participants success in finding solutions to the sector issues.

# LOOKING FORWARD

The conference allowed regional delegates to share their own experiences on a diverse range of topics: ongoing sector reform efforts, new developments in adopting climate-resilience planning, utility modernization measures, early steps in transitioning to a basin-level integrated water resource management approach, challenges in addressing regional water quality management, tariff reforms for increasing financial sustainability, experiences with private sector participation, and challenges and lessons to expand access of water supply and sanitation services in rural areas. International contributions were highly appreciated, with scope for further exchange, such as with the Danube Water Program/IAWD on capacity building, with the Bulgaria regulator on tariff reform, and potentially with Portugal on decentralized sanitation service delivery.

The agenda allowed for country-level group work and participatory polling to capture priorities for technical assistance engagement going forward. Below are some broad directions and priorities, while a detailed Action Plan will be discussed with the countries on a bilateral basis.

* Countries appreciate a combination of national and regional technical assistance and knowledge sharing events to address common sector challenges; little appetite for virtual learning.
* Empowering national networks and/or training institutions was found to be the most effective way to advance the sector; fostering a similar utility association as in Kazakhstan was found to be too early with too high risks for sustainability.
* Priorities for national and regional follow-up are: i) tariff setting and regulation, ii) sector reform and governance, iii) climate-resilience planning and implementation, iv) rural water supply and sanitation; v) public private partnerships, vii) water quality and wastewater treatment, and viii) communication and citizen engagement.

As a follow-up of the Conference, the World Bank will develop country specific assistance plans, as well as a proposal for follow-up regional engagement for 2020/2021.

# CONFERENCE SUPPORTERS

|  |  |
| --- | --- |
| ***ImageImage*** | **The Central Asia Water and Energy Program (CAWEP)** is a partnership between the World Bank, the European Union, Switzerland (through SECO) and the United Kingdom (through DFID) to strengthen the enabling environment to promote water and energy security at the regional level and in the beneficiary countries. The program finances initiatives that support improvements in water and energy management and development, strengthen national and regional institutions and facilitate regional dialogue to advance sustainable development, climate resilience and livelihood security within the region. |
|  | **The Global Facility for Disaster Reduction and Recovery (GFDRR)** is a global partnership that helps developing countries better understand and reduce their vulnerability to natural hazards and climate change. GFDRR is a grant-funding mechanism, managed by the World Bank, that supports disaster risk management projects worldwide. |
|  | Launched in October 2008 as a multi-donor trust fund administered by the World Bank, **the South-South Experience Exchange Facility (South-South Facility or SSF)** enables the sharing of development experiences and knowledge among developing and emerging countries by funding knowledge exchange activities. In doing so, it helps address development challenges and implementation bottlenecks. The SSF provides financial and technical assistance for knowledge exchanges based on demand expressed by the knowledge-recipient countries. These knowledge exchanges are designed and implemented with a focus on achieving results. |

# ANNEX 1. LIST OF PARTICIPANTS

|  |  |  |
| --- | --- | --- |
| **#** | **Name** | **Title, Organization** |
| 1 | Alexandra Serra | Executive Manager, International Division Aguas de Portugal, SGPS, S.A. |
| 2 | Gisela Kaizer | Director, Sustainable Water Management Water Globe Consultants, LLC, Cape Town |
| 3 | Kirill Astapov | Lecturer, Center for Strategic Studies of Lomonosov Moscow State University on Strategic Financial Management and Financial Market Strategy |
| 4 | Vladimir Tausanovic | Vice President, International Association of Water Service Companies in the Danube Region Vienna |
| 5 | Ivaylo Kastchiev | Director, Water and Sanitation Services, Energy and Water Regulatory Commission of Bulgaria |
| 6 | Effy Dvir | Commissioner, Water& Sewerage Water Corporations, Israel Water Authority |
| 7 | Muzaffar Saliev | Minister, MHCS |
| 8 | Tokhir Khaydarov | MHCS |
| 9 | Doniyor Muratov | General Director, Kommunkhizmat Agency |
| 10 | Mirzamurod Uteniyozov | Director, Karakalpakstan Republic "Tuyamo`yin-Nukus" interregional water pipeline State unitary enterprise |
| 11 | Shukhrat Matmusayev | Director, Andijan region "Suvoqova" State unitary enterprise |
| 12 | Iskandar Kholmurodov | Director, Bukhara region "Suvoqova" State unitary enterprise |
| 13 | Zokir Mamarasulov | Director, Jizzakh region "Suvoqova" State unitary enterprise |
| 14 | Shavkat Muradov | Director, Kashkadarya region "Suvoqova" State unitary enterprise |
| 15 | Shaxobiddin Shaymatov | Director, Navoi region "Suvoqova" State unitary enterprise |
| 15 | Shukhrat Davronov | Director, Namangan region "Suvoqova" State unitary enterprise |
| 17 | Komil Yusupov | Director, Samarkand region "Suvoqova" State unitary enterprise |
| 18 | Abdumannon Absattorov | Director, Surkhandarya region "Suvoqova" State unitary enterprise |
| 19 | Yunus Jalolov | Director, Syrdarya region "Suvoqova" State unitary enterprise |
| 20 | Sukhrob Mirdjamalov | Director, Tashkent region "Suvoqova" State unitary enterprise |
| 21 | Farrux Qadirov | Director, Fergana region "Suvoqova" State unitary enterprise |
| 22 | Davron Sabirov | Director, Khorazm region "Tuyamo`yin-Urganch" interregional water trunk main State unitary enterprise |
| 23 | Tokhir Mirxidoyatov | Director, Tashkent city "Suvsoz" State unitary enterprise |
| 24 | Qodir Jamalov | Director, Management on operation of the interregional water pipeline "Damkhoja" State unitary enterprise |
| 25 | Rahmonberdi Norov | Director, Management of the operation of interregional water main recreation zone "Chimgan-Chorvoq» State unitary enterprise |
| 26 | Mirakbar Ikramov | Director, LLC "Musaffo Obi Hayot" |
| 27 | Doniyor Muratov | Director, Agency "Kommunhizmat" |
| 28 | Gushin Sergey | Head of Department, Agency "Kommunhizmat" |
| 29 | Bakhodir Ganiyev | Deputy Director, Agency "Kommunhizmat" |
| 30 | Sherzod Gulomov | Coordinator of Project Coordination Group |
| 31 | Bakhrom Umirzakov | Water and Sewerage Engineer, PCU |
| 32 | Lilya Tsoy | Monitoring and Evaluation Specialist, PCU |
| 33 | Khurshid Usmanov | Procurement Specialist, PCU |
| 34 | Akrom Latipov | Director, "Uzbekkommunalloyihakurilish” State Unitary Enterprise |
| 35 | Shirin Ahmedova | Press service, “Uzbekkommunalloyihakurilish” State Unitary Enterprise |
| 36 | Eldor Muhamedaliev | Director, "Engineering company for construction of water supply and Sewerage facilities" State Unitary Enterprise |
| 37 | Otabek Saidazimov | Director, Training center “Kommunhizmat” State Unitary Enterprise |
| 38 | Tokhir Xaydarov | Deputy Minister, MHCS |
| 39 | Bahodirjon Kakharov | Head of Department, MHCS |
| 40 | Alipasha Ahmedov | Press service, MHCS |
| 41 | Rustam Gulyamov | Head of Department, MHCS |
| 42 | Zuhriddin Zayniddinov | Head of Department, MHCS |
| 43 | Aziz Erkabaev | Head of Department, MHCS |
| 44 | Begzod Abdullaev | Chief Specialist, MHCS |
| 45 | Shamsiddin Nurmuhamedov | Head of Main Department, MHCS |
| 46 | Abduvoris Fattakhov | Head of Inspection, State Water Inspection |
| 47 | Gayrat Rakhimov | Deputy Head of Inspection, State Water Inspection |
| 48 | Kamoliddin Yuldashev | Head of department, State Water Inspection |
| 49 | Shamshod Yunusov | Co-founder and Team Leader, NGO Taraqqiet |
| 50 | Elyor Abdazimov | Head of Department, State Water Inspection |
| 51 | Nadezhda Gavrilenko | Head of Hydrometeorological Service, Uzhydromet |
| 52 | Natalya Agaltseva | Head of Project Monitoring and Implementation Department, Uzhydromet |
| 53 | Markhabat Omarova | Chief Expert of Water Supply and Sewerage Division, Construction and Housing Committee of the Ministry of Industry and Infrastructure Development |
| 54 | Dariko Zhumagulova | Chief Expert of Housing Division, Construction and Housing Committee of the Ministry of Industry and Infrastructure Development |
| 55 | Danara Alimbayeva | Deputy Director General, RSE Kazhydromet |
| 56 | Valeriy Syundyukov | President, Association of Water Supply and Sewerage Enterprises of Kazakhstan |
| 57 | Anarbek Orman | Director, Shymkent Su Arnasy |
| 58 | Meldebek Myrzahmetov | Economic Adviser, Shymkent Su Arnasy |
| 59 | Gulmira Kaliyeva | Chief Expert, Group Water Pipes Development Unit, Water Resources Committee of the Ministry of Ecology, Geology and Natural Resources |
| 60 | Saipidin Momunov | Deputy Head of the Department, Head of the delegation, Department for Drinking Water Supply Development under the State Water Resources Agency |
| 61 | Shaiyrgul Orozbakieva | Head of department, Department of Development of Drinking Water Supply and Sanitation |
| 62 | Svetlana Zhilenko-Zelenskaya | Head of department, Production and Technical Department of PEU Bishkekvodokanal |
| 63 | Mirlan Kenjeev | Director, Kantvodokanal |
| 64 | Nurlan Maksutaliev | Director, Narynvodokanal |
| 65 | Bekjan Supanaliev | Executive Director, ARIS |
| 66 | Kubanychbek Bostonbaev | Project Coordinator, ARIS |
| 67 | Asylkan Ramankulova | Deputy Director, Hydrometeorology Agency under the Ministry of Emergency Situations of the Kyrgyz Republic |
| 68 | Keneshbai Tailakov | Deputy Director, State Agency on Antimonopoly Regulation under the Government of the Kyrgyz Republic |
| 69 | Kalandarov | Chief Engineer, SUE Dushanbevodokanal |
| 70 | Gul Sharipov | Deputy head of water resource management department, Ministry of Energy and Water Resources |
| 71 | Sayfiddin Rahimzoda | Director, SE Branch for water supply and sanitation of Dushanbe and RRS /SUE “KMK” |
| 72 | Sangimurod Samiev | Head of the Monitoring and Environment Protection Department, Agency of Hydrometeorology under the Committee of Environment Protection |
| 73 | Nazar Khudoidodov | Design and Research Institute “Korez Loiha |
| 74 | Orifjon Amirzoda | Head, PMU under the State Unitary Enterprise (SUE) “Obu Korezi Dushanbe |
| 75 | Allamyrat Torayev | "Turkmengiprovodhoz" Institute of the State Water Committee of Turkmenistan |
| 76 | Hemrakuly Babajanov | State Water Committee of Turkmenistan |
| 77 | Tirkesh Nurgeldiyev | Lebap branch of TurkmenHydromet agency of the Ministry of Agriculture and Nature Protection |
| 78 | Yazly Seyitmyradov | Ashgabat Water Enterprise |
| 79 | Begench Mommadov | Karakum river water management unit |
| 80 | Tais Reznikova | WIS Specialist, Regional Environmental Centre for Central Asia (CAREC) |
| 81 | Shynar Sarikenova | WIS Program Assistant, CAREC |
| 82 | André Wehrli | Regional Water Advisor for Central Asia, Swiss Agency for Development and Cooperation |
| 83 | Dildora Abidjanova | National Program Officer, Swiss Agency for Development and Cooperation |
| 84 | Nurgul Esenamanova | Climate Finance Officer, European Bank for Reconstruction and Development |
| 85 | Hurshid Rustamov | Head of the Sustainable Development Cluster (SDC) of UNDP CO, UNDP |
| 86 | Gaukhar Kudaybergenova | Programme Associate on Environment of the SDC, UNDP |
| 87 | Ulugbek Islamov | Project Manager of the Technical Capacity Building Project (Component 2 of the “Sustainable Management of Water Resources in Rural Areas in Uzbekistan” Programme of EU), UNDP |
| 88 | Supee Teravaninthorn | Director General of Investment Operations Department I, AIIB |
| 89 | Jonathan Kamkwalala | Advisor of Investment Operations Department I, AIIB |
| 90 | Olivier Normand | International Secretariat for Water |
| 91 | Raphael Jozan | Head of AFD Regional Representative office in Tashkent, AFD |
| 92 | Dickel Schweitzer | AFD Tashkent Project officer, AFD |
| 93 | Eddie Shapira | Ambassador, Israel Embassy |
| 94 | Doniyor Mukhammadaliyev | Social Sector Officer, Asian Development Bank |
| 95 | Khusan Khasanov | Islamic Development Bank |
| 96 | Tunzhurbek Kudabaev | National Program Officer/Water, Infrastructure and Climate Change, Embassy of Switzerland in the Kyrgyz Republic |
| 97 | Makhfirat Abdulloeva | International Secretariat for Water |
| 98 | Zamzamboy Tajibaev | Coordinator, PIU |
| 99 | David Michaud | Water Practice Manager for Europe and Central Asia, World Bank |
| 100 | Lilia Burunciuc | Regional Director for Central Asia, World Bank |
| 101 | Shavkat Rakhmatullaev | Sr. Water Resources Management Specialist, World Bank |
| 102 | Khairy Al-Jamal | Sr. Water Supply and Sanitation Specialist, World Bank, World Bank |
| 103 | Kamol Kamilov | Consultant / Engineer, World Bank |
| 104 | Susanna Smets | Sr. Water Supply and Sanitation Specialist, World Bank |
| 105 | Togzhan Alibekova | Water Resources Management Analyst, World Bank |
| 106 | Farzona Mukhitdinova | Water Resources Management Specialist, World Bank |
| 107 | Bakyt Arystanov | Water Resources Management Specialist, World Bank |
| 108 | Arcadii Capcelea | Senior Environmental Specialist |
| 109 | Nodira Akhmedkhodjaeva | Environmental Specialist, World Bank |
| 110 | Rano Nuritdinova | Team Assistant, World Bank |
| 111 | Mirzo Ibragimov | Communications Officer, World Bank |
| 112 | Yuriy Sarukhanyan | Consultant, World Bank |

1. See Bonzanigo, Laura; Rozenberg, Julie; Felter, Gregory Calner; Lempert, Robert J.; Reed, Patrick Michael. 2018. *Building the Resilience of WSS Utilities to Climate Change and Other Threats : A Road Map (English)*. Washington, D.C. : World Bank Group. http://documents.worldbank.org/curated/en/425871546231664745/Building-the-Resilience-of-WSS-Utilities-to-Climate-Change-and-Other-Threats-A-Road-Map [↑](#footnote-ref-1)