

THE WIDER PERSPECTIVE: BUILDING A WATER SECURE SECTOR IN THE FACE OF THE CLIMATE EMERGENCY

After the morning's coffee break, Mr. Raimund Mair shared the session's chair with Young Water Professionals' member Eszter Nagy, Assistant Professor at the Budapest University of Technology and Economics, taking the audience from the Water Service Sector to the Water Sector in general, with the first session block dedicated to water security, an ongoing topic in the Danube Water Program and wider Central Asia regions, followed by a second block narrowing the theme back down to impacts on the Water Service Sector.

An introductory audience poll showed 2/3 of the responses concerned with high or very high impacts due to current climate change-related extreme weather events, and 80% expecting future impacts to turn out high or very high. 94% of those who responded saw the water sector in their home countries only somewhat prepared for the challenge – or not prepared at all.

Camilo Lombana, World Bank Senior Water Supply and Sanitation Specialist, presented the Europe and Central Asia Regional Water Security Initiative.

The chain of water security

The urgency is obvious: By 2030, the world will require 40% more water than it does today. 2 billion people don't have access to safe water. 1 in 4 people live in water scarce areas. By 2050, climate change will force over 140 million people to migrate within their countries.

Securing the availability of an acceptable quantity and quality of water for health, livelihoods, ecosystems, and keeping water-related risks to people, environments, and economies at an acceptable level is a daunting challenge that needs to be tackled now.

The World Bank's Water Security Diagnostic Framework views water security as a chain: What do we get, how we use and how we manage water depends on water sector performance, which depends on the water sector architecture, and all are conditioned by the water endowment.

The initiative's analytic work aims to accelerate water action through providing individual analyses for regions. In collaboration with governments and in consultation with stakeholders it

works out a mid-term and multi-sectoral perspective, while prioritizing short-term actions. Depending on objectives, available data, and interest from the client countries, it comes in individual depths and geographic scales of assessment for single countries or whole regions. On the country level, it includes actionable 5-year plans to accelerate water actions and trigger momentum to improve water security outcomes incrementally.

Up to now, Albania, Bosnia and Herzegovina, Croatia, Montenegro, and Serbia underwent deep dive assessments. General country assessments are currently going on in eight Central Asian countries, and regional assessments are under way for the Danube River Basin and the Europe – Central Asia region.

The diagnostic framework

The practical side of operationalizing the Water Security Diagnostics Framework was then treated by Barbara Willaarts, PhD, Scientific Project Manager at the Water Security Research Group of the Austrian International Institute for Applied Systems Analysis.

Aiming at a robust but cost-effective methodological framework to rapidly assess water security challenges, risks and opportunities that allows for benchmarking, is action orientated and puts water higher on the economic agenda, the analytic work integrates a science-based approach with stakeholder expertise and latest policies and plans.

Ms. Willaarts walked the audience through the anatomy of an assessment with its preparatory and diagnostic phase 1 and action planning and decision-making in phase 2.

Initial problem framing involves interviews with key actors of the water sector from different institutional levels and data collection using relevant policy documents and reports.

The next step is establishing an indicator framework selecting core and supporting indicators based on relevance, accessibility, reliability, and availability. Altogether 81 indicators are at hand to assess water endowment, water sector architecture, water sector performance and water security outcomes.

From this analysis, the project team derives future trajectories and a comprehensive country narrative as a basis for the identification and prioritization of necessary actions.

The result is a high-level evidence-based but accessible 360° review of a country's water sector, built on latest information, with an effective implementation time of 4-5 months, strong stakeholder involvement and a robust approach to address the enabling environment.

Reality on the ground: Albania

Mr. Flauers Soshi, Deputy Director, National Agency for Water Supply and Sewerage and Waste Infrastructure, Albania then presented the outcomes of the Water Security Initiative assessment for Albania, a very water-rich country with a population of 2.81 million – and some worrying problems: Only 14% of all wastewaters is safely treated. Almost half the population is not connected to sewers. Over 600 irrigation reservoirs, supplying half the irrigation water, suffer from sedimentation that affects the retention capacity dramatically, and nearly two-thirds of the reservoirs have dam safety issues.

The annual hydroelectricity generation fluctuates massively due to droughts, forcing costly imports in all but the very wettest years. Generally, the drought risk is worrying due to the large dependency on the reservoir network for irrigation and electricity generation, and the flood risk has worsened in the recent decades due to deforestation, overgrazing and a lack of maintenance of the drainage system and pumping stations. An escalating climate crisis adds to the uncertainty.

The Water Security Assessment turned out three priority levels of mitigating actions, the first priority being - improved capacity development and human resource planning, improved monitoring of water bodies, improved dam safety and sustainable operation, support for a shift to more efficient, sustainable agricultural farms, including irrigation modernization, and the design and implementation of a national disaster management plan.

Second priority actions include the development and/or revision of river basin management plans, and the development of a strategy to finance the associated measures, improved infrastructure planning and management, improving service and financial sustainability, including utility aggregation, advancing the implementation of EU water directives, and reactivating action plans to reduce non-revenue water and increase energy efficiency.

Third priority actions are completing/maintaining the register of water users, further improvement of flood protection in line with the EU Floods Directive, and a review of the tariffing system for water uses.

The science of drought risks

Taking things back down to the utility level, Olivia Becher, Researcher at the University of Oxford, presented a global framework for drought risk assessment for water utilities, developed to estimate the present and future risks of drought for 5600 utilities to identify the most cost-effective climate adaptation measures from a portfolio of desalination, storage, and leakage reduction options. Here, Ms. Becher cautions that given the limitations of global datasets, this is necessarily only a starting point for a tailored, more detailed study on the Danube region.

To model the water balance of 5600 utilities, the study quantifies risks in terms of Unsustainable Water Supply Days (UWSD) and estimates the tariff revenue at risk, comparing the result with the impact of three alternative infrastructure interventions to reduce UWSD and select the most cost-effective option per utility.

The study estimates the median utility to be subject to 15 days of unsustainable or disrupted supply under present day conditions.

In the future, between 70-85% of at-risk utilities will see increased risks, with the total UWSD increasing by 30-45% between 2030-2060.

For 60% of all utilities in the sample, leakage reduction would be the most cost-effective means of reducing water shortages. This applies across most regions, including Europe and Central Asia. For most coastal utilities, predominantly in East Asia, Pacifica, and North America and for 10% of utilities overall, desalination is the highest priority option.

Greater storage is found to be a priority option in the remaining 30% of cases, many of those in Sub Saharan Africa and Middle East/North Africa.

Mitigating risks comes at a cost: Implementing the most cost-effective actions in every case would mitigate 75-80% of additional future risk levels at a cost of 20 billion USD per year, achieving a reduction in tariff revenue at risk of 5-25 billion USD per year, resulting in an overall benefit-cost ratio between 0.4 and 1.4, with BCRs greater than 1 only available for a fraction of utilities that set high tariff rates, typically in higher income countries.

On the other hand, implementing only options with positive benefit-cost ratios would achieve only 5-20% of the risk reduction. Here, Ms. Becher remarks that this highlights the need to take the wider socio-economic benefits of risk reduction into account.

A coordinated national effort

A coordinated national effort to reduce non-revenue water was the theme of the subsequent presentation by Ms. Vesna Grizelj Simic, Deputy Director of Hidroprojekt-Ing d.o.o.

This project is part of the ongoing water sector reform in Croatia which aims to aggregate 160 service providers into 41 units. With an average non-revenue water rate of 50%, and up to 80% in some cases, Croatia is in the third lowest place among EU countries.

The water loss reduction project runs from April 2022 until November 2023, with financing by the EU Commission, and aims to improve the institutional capacity of relevant public authorities and public water service providers to reduce excessive losses from water supply systems.

The project team took stock of the situation by collecting data from centrally available sources and sent a 130-point questionnaire to the service providers, followed by consultation workshops, capacity building workshops and consultative meetings, resulting in a draft National Loss Reduction Action Plan, the first comprehensive document prepared to improve the water loss reduction in Croatia. It defines key groups of measures and sub-measures applicable at all levels, from individual service providers to the national level, with assessment of the impact of the implementation of the proposed measures.

The proposed actions cover all areas that have an impact on water loss reduction and aim to raise awareness of the importance of long-term implementation of all actions.

As part of the analysis of the current situation, a database of all service providers in Croatia was created. It includes all important technical, operational, organizational and personnel data. The impact of this effort might well reach beyond the national borders: The Plan provides an elaborated methodology for water loss reduction and action plan preparation that is also applicable in other countries and water service providers that wrestle with similar water loss problems.