International Association of Water Service Companies in the Danube River Catchment Area

IAWD

DANUBE WATER PROGRAM

Smart policies, strong utilities, sustainable services

BUILDING A RESILIENT AND WATER SECURE DANUBE REGION

2021 DANUBE WATER CONFERENCE

Report, February 2022

Federal Ministry
Republic of Austria
Finance

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I. AGENDA OUTLINE

Monday 18th October	*11:00–12:30*	*Meet the Exhibitors/Network with Peers*	
	12:30-13:30	**2021 Danube Water Conference: Opening Session**	
	13:30-14:00	*Meet the Exhibitors/Network with Peers*	
	14:00-15:15	**Taking the pulse: A Water Security Diagnostics for the Danube Region**	**Roundtable: Explore the D-LeaP tools for efficient water services**
	15:15-15:45	*Meet the Exhibitors/Network with Peers*	
	15:45-17:00	**Droughts and climate change: An increasing threat, is the Danube Region prepared?**	**Roundtable: How the Utility Management Training supports you to become a Utility of the Future**
Tuesday 19th October	*11:00–12:30*	*Meet the Exhibitors/Network with Peers*	
	12:30-13:45	**Innovative technologies for water security**	**Roundtable: Do you speak Danubian?**
	13:45-14:15	*Meet the Exhibitors/Network with Peers*	
	14:15-15:30	**Smart utility management for resilient water service provision**	**Transboundary water cooperation: Progress and emerging challenges**
	15:30-16:00	*Meet the Exhibitors/Network with Peers*	
	16:00-17:00	**Ask me Anything: Everything you wanted to know about water**	**Stakeholder consultations: Water Security Diagnostics**
Wednesday 20th October	*11:00–12:30*	*Meet the Exhibitors/Network with Peers*	
	12:30-13:45	**Fostering an innovation culture to support utility modernization**	**Integrating green and gray infrastructure for water security and climate resilience**
	13:45-14:15	*Meet the Exhibitors/Network with Peers*	
	14:15-15:30	**Cooperation as key to sustainable water services**	**Roundtable: Second year of COVID-19 crisis - impacts and mitigation measures in the WSS sector**
	15:30-16:00	*Meet the Exhibitors/Network with Peers*	
	16:00-17:00	**2021 Danube Water Conference: Closing Session**	

Main session

Roundtable/Working Group

II. THE ORGANIZERS

1. World Bank / IAWD Danube Water Program

The World Bank / IAWD Danube Water Program supports **smart policies, strong utilities and sustainable water and wastewater services** in the Danube region by partnering with regional, national and local stakeholders, promoting an informed policy dialogue around the sector's challenges and strengthening the technical and managerial capacity of the sector's utilities and institutions.

Why this Program?

Governments and water professionals in the Danube region face a double challenge of meeting their citizens' demand for universal, good quality, efficient, and financially sound or - in one word - sustainable water and wastewater services, while catching up to the environmental requirements of the European Union *acquis communautaire*. To address this double challenge, the World Bank and the International Association of Water Service Companies in the Danube River Catchment Area (IAWD) have partnered to launch the Danube Water Program, with a 13 million Euro, three-phased financing from the Government of Austria.

What has the Program achieved?

The Danube Water Program was formally launched in May 2013 in partnership with line ministries, regulators, waterworks associations, and local government representatives of a dozen countries in South-East Europe. Since the launch of the Program, knowledge exchanges among more than 1,200 sector professionals and policy makers in the region and beyond has taken place. In 2015 a State of the Sector report was launched (SoS 2015), and updated in 2018 (SoS 2018), and is a flagship product of the Danube Water Program. The report provides an analysis of the region's progress and challenges in providing sustainable water and wastewater services for all and aims to document and inform water services policies and their outcomes in 16 countries of the Danube region. Three additional analytical pieces exploring status and trends in wastewater management, rural water supply and sanitation and agglomeration of utilities have been published. Capacity building programs benefiting over 160 utilities have been undertaken under the region wide Danube Learning Partnership (D-LeaP) involving cooperation with all the national water utility associations. Numerous local initiatives worth more than € 1,000,000 through competitive grants have been supported.

What is coming now?

Under the Danube Water Program's third phase, the program focuses on the flagship activities developed in the previous phases. The key "legacy" initiatives include the continuation of the Danube Water Conference as the prime gathering of sector professionals in the region; the development and update of key regional analytical and advisory activities, the further development of the benchmarking activities for the whole region; and the implementation of capacity building activities under the Danube Learning Partnership (D-LeaP), a sustainable learning partnership of national and regional water utility associations. In addition, DWP implementation experience of the past seven years has evidenced the need to expand the scope of the program to include water security aspects to remain relevant for the region's countries' challenges.

www.iawd.at
www.worldbank.org/en/topic/water
www.danube-water-program.org

III. THE PARTICIPANTS

The 2021 Danube Water Conference on "Building a Resilient and Secure Danube Region" was held on October 18-20, 2021. Given the unpredictability of the COVID-19 pandemic situation, the event was held virtually using the leading-edge Conference Management Platform "Swapcard." Detailed information on the Danube Water Conference including session summaries and recordings can be found on the DWC website.

This year's conference brought together almost 250 participants from national and local governments, regulatory agencies, water utilities, international financing institutions and professional associations as well as academia, coming from more than 30 countries around the globe.

Figures 1 and 2 show this year's distribution of participants by institution typology and by country/region.

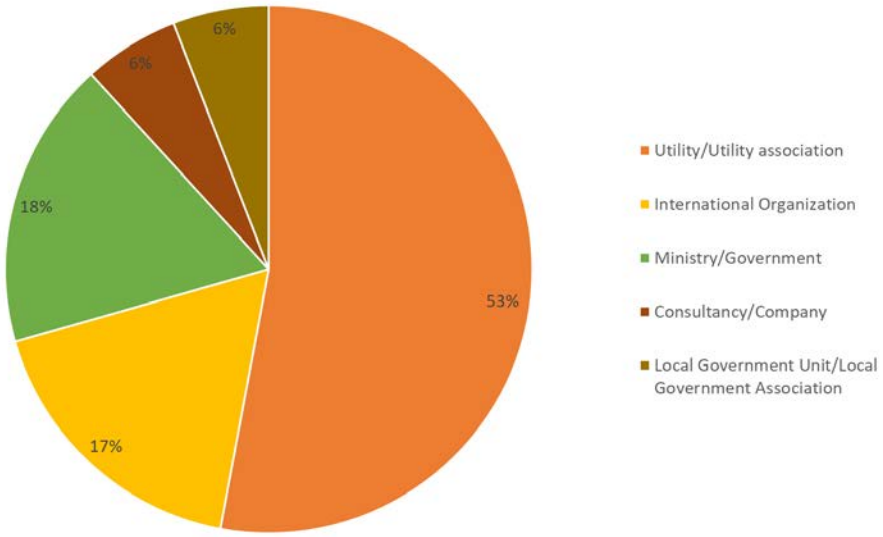


Figure 1 Distribution of 2021 DWC participants by institution typology based on the survey results.

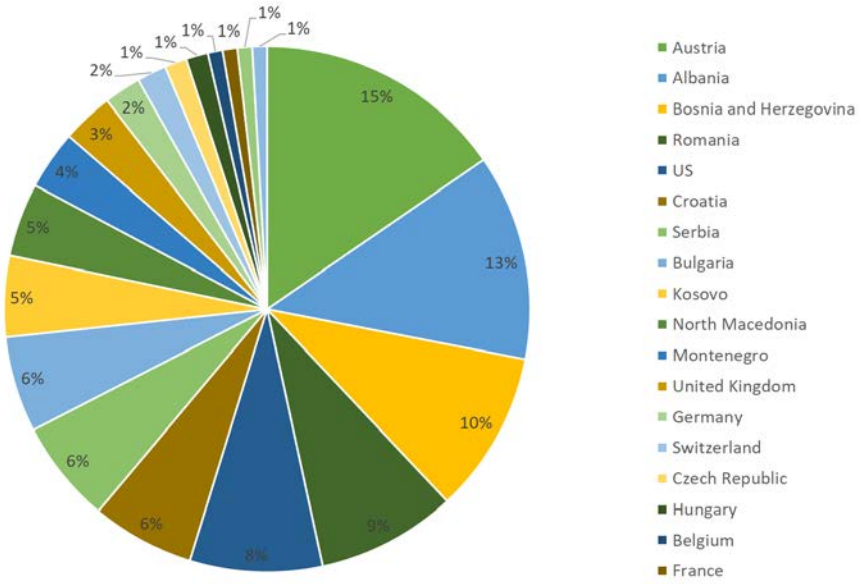


Figure 2 Distribution of 2020 DWF participants by the top 20 countries based on the DWC registration

IV. SESSION OVERVIEW

2021 Danube Water Conference: Opening Session

Date: Monday, 18 October 2021
Time: 12:30 – 13:30
Chairs: Mr. Raimund Mair, World Bank and Mr. Philip Weller, IAWD

Context and objective

The opening and keynote session featured welcoming words from senior representatives of the various institutions organizing, hosting and supporting the 2021 Danube Water Conference and provided an overview of the event's structure. It was followed by a keynote speech and a panel discussion on the subject.

Session structure (find the recording here)

Time		Content	Speaker
12:30	5'	**Introduction**	**Mr. Raimund** Mair, Senior Water Resource Management Specialist, DWP Program Leader, World Bank, Austria and **Mr. Philip Weller**, Head of Technical Secretariat, IAWD, Austria
12:35	10'	**Welcome words** from the Hosts	**Mr. Winston Yu**, Practice Manager, Water Practice, Europe and Central Asia, World Bank, US and **Mr. Walter Kling**, President, IAWD, Austria
12:45	5'	**Welcome words** from the Austrian Ministry of Finance	**Ms. Elisabeth Gruber,** Director for International Financial Institutions, Austrian Federal Ministry of Finance, Austria
12:50	20'	**Building a Resilient and Secure Water Sector – Needs and challenges ahead**	**Dr. Kala Vairavamoorthy**, CEO, International Water Association, UK
13:10	20'	**Framing the debate** (two immediate reactions on the Keynote)	Moderated by **Mr. Raimund Mair**, Senior Water Resource Management Specialist, DWP Program Leader, World Bank, Austria and **Mr. Philip Weller**, Head of Technical Secretariat, IAWD, Austria **Panelists:** - **Dr. Monika Weber-Fahr**, Senior Advisor, World Bank, Austria - **Mr. Jiri Paul**, Managing Director, VAK Beroun, Czech Republic
13:30		**End of session**	

Session Summary

With more than 200 registered participants gathering on a highly advanced conference platform, expectations ran high, and the 2021 Danube Water Conference met them from minute one, delivering food for thought in generous quantities.

Philip Weller, Head of the IAWD Technical Secretariat, and Raimund Mair, Senior Water Resources Management Specialist at the World Bank and Danube Water Program Team Leader, moderated the kick-off event, welcoming everybody back after an unprecedented crisis experience. Raimund Mair cited a popular definition of resilience as "the ability to be happy and successful after something bad has happened", and that is indeed what the 2021 Danube Water Conference is about.

A toast with clear water

Winston Yu, Practice Manager Water Practice ECA World Bank, started the welcoming round. He remarked that the Danube Water Program is the World Bank's longest-running technical assistance program anywhere in the world, called the collaboration with IAWD a model for successful cooperation with a regional body, and expressed gratitude for what he called the "fantastic support" by the Austrian Ministry of Finance.

IAWD President Walter Kling toasted the audience with a glass of excellent Viennese drinking water, appreciating the 250+ event registrations, the state-of-the-art conferencing technology and the healthy growth of the Voice of the Danube community, yet expressing the sincere hope that next year will bring a much-needed physical get-together, the first since 2019.

Elisabeth Gruber, Director for International Financial Institutions at the Austrian Federal Ministry of Finance, reminded the audience of the importance of coordinated international and regional efforts towards resilience and water security in the face of widespread water stress, exacerbated by ongoing climate change. Ms. Gruber took the occasion to announce that work on a Danube Water Program Phase 4 is underway.

The climate crisis – a water crisis

Next, Kala Vairavamoorthy, CEO of the International Water Association, took the stage, delivering a keynote filled with food for thought. "The climate crisis is a water crisis", the IWA CEO states, noting that rising water risks share a sad top five position with weapons of mass destruction and natural disasters in the Global Risk Report of the Intergovernmental Panel on Climate Change. In the same breath, he notes the striking dichotomy here: "Water is a top risk. So why is it not high up on the political and business agenda?"

Rethinking risks

Dr. Vairavamoorthy calls on political bodies to "reverse the sequence", switching from post-disaster rescue and recovery to proactive prevention and cure, reminding leaders that "good water is good politics". He sees a historic opportunity in the numerous "green" post-Covid recovery and rebuilding programs that are springing up in all corners of the planet: "Now is the time to capitalize on the movement and to reset water management in the context of new narratives", he said. "Historically, water has been a building block of the high carbon economy. Now it should become a building block for the new low carbon economy."

A "golden age" for the wastewater sector

Regarding the best road to a water secure future, the IWA's CEO states categorically that "wastewater is the key", presenting examples for productive and creative steps towards a circular water economy using "designer water" of up to five different quality classes.

Dr. Vairavamoorthy sees a "golden age" ahead for wastewater and sanitation, especially for countries that need to invest now to catch up: "They can build on experience from big pilot studies!" The water future they build will be decentralized and therefore resilient, nature-based, and therefore decarbonized, and digital, and therefore feasible.

Readiness – or not?

There are stumbling blocks on the road to this golden age, though. Without readiness on the technical, societal, organizational and legal levels, change cannot happen: "We need to change the default setting for sustainable water management", say Kala Vairavamoorthy. "Up to now, we have been tinkering around, and that is not enough. We need a paradigm shift."

Reacting to Dr. Vairavamoorthy's keynote from the practical utility operator perspective, panelist Jiri Paul, Managing Director of VAK Beroun confirms that readiness is an important issue: "One of the biggest challenges, and one that most utilities in the region are facing, is changing the way our customers view water and its cost. We operate in a former Eastern Bloc country where, until three decades ago, water cost next to nothing. We really have to work with our customers, educate them, and make them understand that the price of a cubic meter of water includes expensive investments into safety and service continuity."

Utilities leading the way

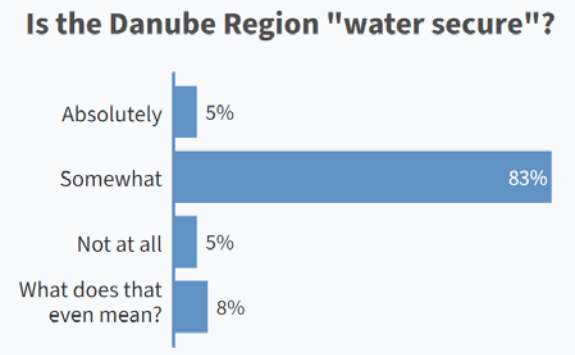
Panellist Monika Weber-Fahr, World Bank Senior Advisor, takes this train of thought even further, seeing utilities as potential agents of change and challenged to set regulatory agendas. Referring to last summer's flood disasters in Europe, she notes that in technically highly advanced countries, authorities failed to communicate efficiently to prevent large-scale death and destruction: "Utilities can play a role demanding change. Utilities will be listened to."

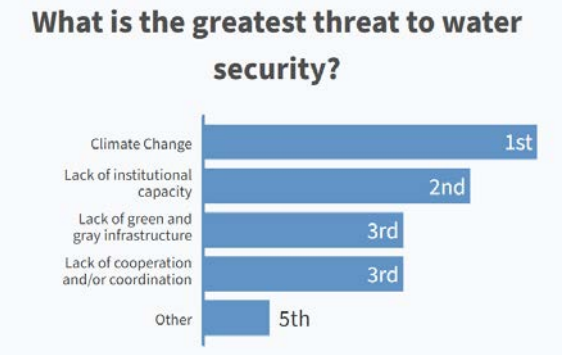
Pointing to the "Utilities of the Future" Program, Ms. Weber-Fahr invites utilities to develop a culture of productive communication within the organization to build resilience and to work all the way up the ladder to produce readiness for the necessary change.

Changing the mindset

Kala Vairavamoorthy agrees that the water sector needs to educate society, not only about the value of water and the need for sustainability, but also about how to cope with disaster: "We have created a society that believes infrastructure can protect everybody", he notes. "But we cannot build our way out of catastrophic events. We need to face the fact that our infrastructures are in fact quite fragile systems that, once they fail, fail badly. If, for whatever reason, the return frequency of catastrophic events overwhelms our reaction time, we are in trouble. This calls for a change in the mindset of both utilities and society."

Finally, a survey among the participants revealed that the conference theme "Building a Resilient and Water Secure hit a nerve: 83% feel that the Danube Reason is not absolutely, only somewhat "water secure", with climate change seen as the by far biggest threat, lack of institutional capacity the runner-up, and both lack of infrastructure and cooperation/coordination winding up third.





Taking the pulse: A Water Security Diagnostics for the Danube Region

Date: Monday, 18 October 2021
Time: 14:00 – 15:15
Chair: Mr. Camilo Lombana Cordoba, World Bank

Context and objective

Water Security is about building a water secure future for the people, the economy and the environment in the light of global, regional and local changes. Considering the complexity in tackling water security's various aspects, the World Bank has developed a conceptual framework of water security to provide a new, comprehensive, and balanced view of water security, stressing the importance of the diverse social, environmental, and economic outcomes from water. Consideration of water sector architecture and performance — and how these determine outcome — leads to recommendations for improving aspects of sector performance and adjusting sector architecture for better outcomes. The analysis of sector performance considers (i) management of the water resource, (ii) delivery of water services, and (iii) mitigation of water-related risks. The description of sector architecture considers water infrastructure, and institutions (encompassing institutional arrangements, financing, and governance).

The World Bank's Water Global Practice kicked off a Water Security Diagnostic Initiative in 2017. Since then, several water security diagnostics have been ongoing or delivered globally both on the country and regional levels, meeting the growing demand for water security analytics. Building on previous analytical work which was conducted in the frame of the Danube Water Program, including i.e. the State of the Sector Reports, work is ongoing for the development of a Water Security Diagnostics for the Danube Region.

The objective of the session was to provide information on the Water Security Conceptual Framework, related ongoing and upcoming analytical work targeting the Danube Region, as well as providing an example for already finalized work and how the results allow for a dialogue on important water sector development needs in a country. The aim was to generate interest and raise awareness for this important work under the Danube Water Program. Following a set of presentations and interventions, a panel discussion allowed for more detailed discussions on the relevance of Water Security analytical work for advisory work, reform and investment decisions. Participants can interact via Q&A.

Session structure (find the recording here)

Time		Content	Speaker
14:00	5'	**Introduction**	**Mr. Camilo Lombana Cordoba**, Senior Water Supply and Sanitation Specialist, World Bank, US
14:05	10'	**World Bank Water Security Initiative**	**Mr. Raimund Mair,** Senior Water Resources Management Specialist, World Bank, Austria
14:15	15'	**A Water Security Diagnostics for the Danube Region**	**Dr. Taher Kahil**, Research Group Leader, International Institute for Applied System Analysis (IIASA), Austria
14:30	10'	**World Bank analytical work as a basis for reform and investment decisions**	**Mr. Simon David Ellis**, Program Leader, Western Balkans CMU, World Bank, Austria
14:40	35'	**Panel discussion**	Moderated by **Mr. Camilo Lombana Cordoba**, World Bank, US

			Panelists: - **Mr. Baton Begolli**, Water Policy Advisor, Inter-Ministerial Water Council, Kosovo - **Mr. Hector Alexander Serrano**, Senior Water Resources Management Specialist, World Bank - **Ms. Barbara Willaarts**, Researcher, Water Security Research Group, International Institute for Applied System Analysis (IIASA), Austria
15:15		**End of session**	

Session Summary

The world is approaching a water crisis of enormous proportions, with demand forecast to exceed supply by 40% as early as 2030. How do we quantify the risks for the Danube region? A panel of distinguished experts provided answers.

Moderator Camilo Lombana Cordoba, World Bank Senior Water Supply and Sanitation Specialist, first handed the floor to his colleague, Senior Water Resources Management Specialist Raimund Mair, who outlined the reasoning behind and the anatomy of the World Bank Water Security Diagnostics Initiative and the current Danube Water Security Diagnostics, launched in 2021 in the frame of the Danube Water Program.

The huge importance of water

Gauging water risks makes sense because so much depends on water. EU-wide, 16,3 million enterprises, 44 million employees and more than a quarter of the EU's annual gross value added depend on the availability of water. Through the last three decades, droughts caused 86 billion EUR in damages. From 2002 to 2013, flood damages accumulated to 150 billion EUR. By 2050, annual damages might multiply by a factor four, and poor water quality can reduce economic growth by a third.

In 2017, the World Bank launched its Water Security Diagnostics Initiative, applying the Bank's expertise, instruments and resources to produce studies with an impact on political decision-making, creating a "Water Writ Large" narrative in a country or region.

Taking the pulse of the Danube

Studies for Moldova, Romania and Kosovo are already available, and this year the Danube Water Security Diagnostics started. Building on previous analytical work conducted in the frame of the Danube Water Program, the report will provide a broad sector analysis, identify current and potential future security "hot spots", and give recommendations for action.

For an in-depth look at the methodology of the Danube Water Security Diagnostics, Mr. Cordoba handed the stage to Taher Kahil, Research Group Leader at the International Institute for Applied Systems Analysis.

More than 75 indicators and one holistic approach

Introducing a systems-based approach to water security diagnostics, a multi-step assessment process produces a quantitative and qualitative status, insights into the trajectory of future developments, and recommendation for action to improve resource management, service delivery, risk mitigation and building resilience. Altogether more than 75 diagnostic indicators help to assess water security, water endowment, water sector architecture and performance, and water security outcomes.

Taking a holistic approach, the Danube Water Security Diagnostics will help to reveal important entry points for action to improve water security, covering the "3 i's: information, institutions, infrastructure".

Green development or brown development?

Next, World Bank Program Leader Simon Davis Ellis contributed a view at the broader context of infrastructural development in the Danube region, with special focus on the Western Balkans, where the current analytical work is seeking to develop a narrative for green growth. “At the end of the day, countries have the choice between brown and green development, and green can be expensive and socially disruptive.”

Mr. Ellis noted that the European Green Deal provides a helpful context here, but with a limited reach: “We hear a lot about the energy sector, and a lot of the dialogue is about decarbonization, but elsewhere there isn’t much of a strong narrative, and green growth needs a broader view.”

Calling for a broader view

This includes a fiscal point of view, using taxation and subsidies to steer behaviour, and the implications of the necessary reforms for the financial resilience of countries. It includes a holistic view of cities and their liveability, and it includes concepts for creating resilience in the face of natural disasters. “Water feeds into so many of these things”, remarks Mr. Ellis, mentioning that initiatives like the Danube Water Program are currently widening their focus beyond service delivery to include water security issues ranging from pollution to flood and drought risks, and from securing water resources for the agricultural industry to keeping hydropower going during droughts.

Solving these issues will demand cross-border cooperation, large investments and the development of sustainable models of operation and maintenance of critical infrastructures. Which brings Mr. Ellis back to the value of reliable diagnostics: “It is really important to identify emerging trends, to focus on priorities and to prioritize investments.”

Knowledge generators in search of relevance

In the subsequent panel discussion, IIASA Scientific Project Manager Barbara Willaarts pointed out the importance of science and research for informed political decision-making, noting that in spite of all progress there is still a noticeable gap between science and politics, for three obvious reasons.

Firstly, the scientists’ perspective is dictated by their research agenda, and this does not necessarily translate to a social agenda. Secondly, to communicate their science, the scientists’ main channel are peer-reviewed papers, and those do not necessarily include the questions and answers that policymakers can work with. Thirdly, scientists need amounts of time that are not available in policymaking.

“As knowledge generators, we need to make our research more relevant”, says Ms. Willaarts. “We have to hit the target and bring solutions to real problems.” She sees a necessity for transdisciplinary collaboration, communication beyond scientific papers, and even beyond the policy level, presenting data and tools in broadly accessible and understandable ways: “Everybody agrees that evidence-based decision-making is fundamental. Therefore, let’s be meaningful and let’s do science with a real-world impact. We have no time to lose.”

A story of loss and gain

Next, Hector Alexander Lozano, Senior Water Resources Management Specialist at the World Bank, gave examples for real-world impact from his work in Latin America. He reports that, whether operating on a regional, national or a local level, the main task is always gathering all stakeholders, government, banks, investors, regulators and operators around a table, giving them a coherent narrative, a single storyline. “This is, as a matter of fact, one thing that the World Bank is very good at: To boil 75 or 100 indicators down to a coherent story, translating complex challenges into a story of potential losses and gains.”

Mr. Lozano mentions a study for Mexico City with its 23 million inhabitants: “Here, we managed to explain that, in spite of all pressures, two specific activities had the potential to save a huge amount of water – which made more sense than a complex program they would have had to develop over years. It is all about introducing metrics that everybody understands and introduce measures on a local level to address the most important issues.”

The healthy impact of reports

Last to take the stage was Baton Begolli, Water Policy Advisor at the Inter-Ministerial Water Council of Kosovo. He reported on the effects of a completed Water Security Diagnostics report for Kosovo:

"This report illustrated that Kosovo is the most water-stressed country in the region. It generated discussions about how we are supposed to meet a growing demand in the face of more and more frequent and longer droughts. Together with the Covid crisis, it changed our approach to water sector planning. We used to pay a lot of attention to services and none to the sources. Now the general public became aware of the need to conserve and preserve existing water resources, monitor dams, introduce groundwater monitoring. Now we are in serious negotiations about new multi-purpose dams. Another upside is that even during frequent government changes, the document provided enough common ground to keep decision-making processes going without any hiccups."

Roundtable: Explore the D-LeaP tools for efficient water services

Date: Monday, 18 October 2021
Time: 14:00 – 15:15
Chair: Mr. Philip Weller, IAWD

Context and objective

The Danube Learning Partnership (a cooperation between IAWD and national water utility associations to deliver capacity building programs in the Danube Region) has developed curriculum and programs to help utilities improve themselves in important areas of operations (www.d-leap.org). Two of these programs, the Utility Benchmarking Program (UBP) and the Integrated Asset Management Program (AM), which is organized in cooperation with GIZ, were introduced and presented in this session. Both these programs also involve sharing of experience and information among utilities and building a community of support.

The objective of the session was to hear the views of participants in the programs and share experience how capacity building programs such as UBP and AM can help utilities to prove the efficiency of their services and what the main challenges encountered are.

Session structure (find the recording here)

Time		Content	Speaker
14:00	5’	**Introduction**	**Mr. Philip Weller**, Head of Technical Secretariat, IAWD, Austria
14:05	10’	**Elevator Pitch: Knowing your data and knowing your assets: Utility Benchmarking Program Asset Management Program**	**Dr. Katerina Schilling**, Communication and program Manager, IAWD, Austria and **Dr. Petros Kolovopoulos**, Executive Director, Hydro-Comp Enterprises, Cyprus
14:15	50’	**Roundtable discussion with Q&A from the audience**	Moderated by **Mr. Philip Weller**, Head of Technical Secretariat, IAWD, Austria **Speakers:** - **Dr. Aleksandar Sotic**, Manager of AM Hub, UTVSI, Serbia - **Mr. Sokol Xhafa**, Acting Director, Regional Water Company Pristina, Kosovo - **Mr. Darius Bor**, Chief Financial Officer, Apaserv Satu Mare, Romania - **Ms. Viktoria Iskova**, Head of Danube Water Centre, Ukraine - **Mr. Aleksandar Krstic**, UBP Coordinator, Danube Hub, Serbia - **Dr. David Tyler**, Water Sector Specialist, European Bank for Reconstruction and Development, UK
15:05	10’	**Wrap-up**	**Mr. Philip Weller**, Head of Technical Secretariat, IAWD, Austria
15:15		**End of session**	

Session summary

Mr. Philip Weller opened this round table session dedicated to two D-LeaP programs, the Asset Management program (AM) and Utility Benchmarking Program (UBP), stressing the importance of these programs for improving the efficiency and resilience of utilities.

Knowing your data and knowing your assets

In the session's first presentation, Katerina Schilling, IAWD, introduced the vital importance of a solid database for every utility, together with the necessary structures to identify areas in need of improvement and those areas which work satisfactorily. Over the last decade, the Danube Water Program has created a working benchmarking strategy including the public performance indicator database DANUBIS.org, accessible on the Voice of the Danube website, support to national performance data collection activities, and the Utility Benchmarking Program (UBP).

Mrs. Schilling recommends that every utility should join the UBP: Organized in regional Hubs, it supports member utilities in assessing their performance, collects, validates and analyses data in local language, holds workshops on performance improvement and issues helpful reports. Member utilities share their data and receive individual reports that help them to compare their own performance with that of other members in their national Hub and across the whole Danube region, offering a smart, efficient way to identify performance gaps. Hub members also profit from a lively exchange of knowledge, experiences and best practises. Ms. Schilling closed her elevator pitch inviting interested utilities to get in touch with the individual Hub coordinators for in-depth information about the program.

Next, Dr. Petros Kolovopoulos, Executive Director, Hydro-Comp Enterprises, Cyprus, introduced the Asset Management Program, initiated 5 years ago in the region by GIZ, Hydrocomp and all D-LeaP Hubs. This program is hugely successful, offering capacity building and asset handling and maintenance knowledge for water and sanitation utilities. It meets a huge demand, because utilities are under considerable pressure to improve their performance and cost efficiency. Mr. Kolovopoulos explains that the objective of the program is to work through Hub centres to provide participating utilities with training, support and appropriate software tools to implement best asset management practices.

The program runs classroom training packages on three levels, Silver, Gold and Platinum, and teaches participants to set up and implement asset management tools, converting actual data for management purposes.

A path towards improvement

The following discussion format was moderated by Mr. Philip Weller, Head of Technical Secretariat, IAWD, Austria. Panellist Mr. Aleksander Sotic, UTVSI AM Hub, started the round recommending that utilities should grab the opportunity to be trained under the D-LeaP umbrella and to achieve quick, effective improvements of their operations by joining the AM program. He calls participation a journey that can lead whole water companies towards proper decision-making cultures, with asset management being a starting point for managing change across a whole system. He also reminds the audience of the necessary requirements for successful participation in the program, namely an honest wish to improve performance, serious dedication, and a measure of trust.

Mr. Sokol Xhafa, Acting Director, Regional Water Company Pristina, Kosovo, then focused on the benefits of both programs. He spoke from long experience, having joined the Kosovo Benchmarking Hub as early as 2014. Reporting is an important issue for every water utility, all the more so in Kosovo, where utilities report to the regulatory authority, and Mr. Xhafa found benchmarking helpful in this respect and also in speedy, solid decision-making.

He counts participation in the Asset Management Program as one of the crucial projects of his company, only regretting that COVID-19 has delayed data gathering in the field and hoping that the necessary information will soon be available for future planning and projects stages. RWC Pristina has even hired additional staff to collect data, implementing the Benchmarking and Asset Management Programs not as projects, but as a routine daily basis process.

Mr. Darius Bor, Chief Financial Officer, Apaserv Satu Mare, Romania then stressed the advantages for utility managers once a database covers many years of development, showing how the business evolves and allowing comparisons with performance averages from the Danube Hub and also between divisions of a company.

He mentions that while it is valuable to participate in national programs, it is also very important to participate in international programs like the IAWD UBP, because this gives utilities a broader perspective of their performance. His own company benefited from such data, using them to prioritize measures to improve the performance in one year and four-year cycles, with the aim of becoming “a better company for our customers”.

Asked by moderator Philip Weller about the additional benefits of international level data comparison, Mr. Aleksander Krstic, Coordinator of the UBP Danube Hub, confirmed the importance of participating in an international benchmarking program, appreciating the benchmarking reports that compare the performance of an individual utility with others across the region.

Dr. David Tyler, Water Sector Specialist European Bank for Reconstruction and Development, UK, next described the activities of the EBRD in Eastern Europe and the Western Balkan, where the Bank invests in projects while also supporting reform efforts in the institutions they are working with, including the necessary capacity building. The EBRD is particularly keen to encourage sustainable financing and structures in every sector that they cover, and therefore appreciates initiatives like the D-LeaP programs. Dr. Tyler explains that investment alone is not sufficient without providing utilities with the tools to create and manage their assets. The D-LeaP AM program is a very powerful tool in this respect, and all the more important because the return on investments in quality asset management techniques is a lifecycle cost reduction in the vicinity of 30%, explaining why investment in assets does not make sense without also investing in asset care.

Droughts and climate change: An increasing threat, is the Danube Region prepared?

Date: Monday, 18 October 2021
Time: 15:45 – 17:00
Chair: Ms. Kathia Havens, World Bank

Context and objective

Water scarcity and droughts are amongst the most tangible and devastating consequences of the climate crisis. They increasingly affect communities across the planet, causing tolls on societies, the economy and the environment. Europe and the Danube Region are no exception. In the last decades, a series of widespread droughts have affected significant parts of Europe, including the Danube Region, with negative impacts on various water-dependent economic sectors, the welfare of people, vegetation and on the aquatic environment. In 2017, a significant drought developed across the entire Danube Region and persisted in its northern parts throughout 2018 and 2019. This is one of the latest of a series of events which occurred, highlighting recent trends and the significance of the issue in the Danube basin and Europe, specifically in the context of climate change. It is crucial that societies adapt, and that governments and water-dependent sectors accelerate prioritizing and scaling up their response and preparedness for water scarcity and droughts in the coming decade.

In September 2021, a two-day virtual workshop was held convening stakeholders from the Danube Region to discuss the relevance and impacts of droughts in the Danube region, along with pathways, policy and regulatory approaches to improve resilience. The workshop initiated a discussion in the frame of the Danube Water Program aiming to raise awareness and provide a forum for technical exchange. This session provided a summary of the main outcomes from the September workshop and provided lessons learned from additional specific case studies in the region.

Session structure (find the recording here)

Time		Content	Speaker
15:45	5’	**Introduction**	**Ms. Kathia Havens**, Program Analyst, World Bank, Austria
15:50	15’	Toward a more drought resilient Danube region: outcomes of the Danube Drought Workshop	**Ms. Sabina Bokal**, Senior Program, Global Water Partnership CEE, Slovakia
16:05	15’	Future of water in agriculture in the Balkans – the Irrigation and Drainage Eco(system) Approach	**Dr. Ranu Sinha**, Irrigation and Drainage Specialist, World Bank, US
16:20	15’	Reliability and climate resilience of water supply in Croatia’s coastal areas	**Mr. Stjepan Gabric**, Senior Water Supply and Sanitation Specialist, World Bank, Croatia
16:35	25’	**Q&A Discussion**	Moderated by **Ms. Kathia Havens**, Program Analyst, World Bank, Austria
17:00		**End of session**	

Session summary

Water scarcity and droughts are amongst the most tangible and devastating consequences of the climate crisis. It is crucial that societies adapt, and that governments and water-dependent sectors scale up their response and preparedness for water scarcity and droughts. In September 2021, stakeholders from the Danube region gathered for a two-day virtual workshop to discuss the impacts of droughts in the Danube region and possible pathways, policies and regulatory approaches to improve resilience. A summary of the main outcomes and lessons learned from additional specific case studies in the region was the focus of this session.

Moderator Kathia Havens, World Bank Program Analyst, invited Senior Programme Manager GWP Central and Eastern Europe Sabina Bokal to give a compressed overview of the outcomes of the September workshop. Reviewing past droughts and the outlook for the near future, the existing regional action frameworks and activities and also the challenges met in implementing viable drought strategies and policies, the workshop came up with three takeaway lessons.

One workshop – three lessons

Firstly, that drought is a very relevant issue in the Danube region, that this issue is gaining traction, but that not all necessary frameworks and protocols are in place. Secondly, that water scarcity and droughts are not yet recognized and addressed at the required level, and that therefore policy development needs to advance, and thirdly that there are significant variations among countries in the region that need to be addressed in follow-up workshops.

Towards a green, resilient transformation

Next, World Bank Irrigation and Drainage Specialist Ranu Sinha gave in-depth insights into solution strategies with a focus on agriculture, presenting the Irrigation & Drainage (Eco)System Approach. Starting with a look at the projected climate change in the Balkans, Dr. Sinha introduced the factors driving transformation of irrigation and drainage in the region, the dominant types of farming and irrigation, and the existing constraints for drought management by irrigation. She highlighted the perspectives for a green, climate resilient, decarbonized, sustainable and inclusive agricultural transformation, and the options for implementing an (Eco)System Approach.

Surprising results

The task of boiling things down from global and regional perspectives to the local level fell to World Bank Senior Water Supply and Sanitation Specialist Stjepan Gabric who presented the surprising results of an in-depth study of the drought situation in the Adriatic costal region of Croatia.

The region is a powerhouse of the Croatian economy, contributing a fifth of the nation's GDP, mostly through its booming tourism sector. Accounting for roughly 90% of Croatian tourism, the coast experiences a fivefold increase in water consumption during the already very dry summer months. The projected further growth in demand and ongoing climate change threaten to overwhelm the basically solid water infrastructure. However, the study showed a surprisingly simple way forward, indicating that more than 50% of the available water in the region winds up as non-revenue water. A reduction of these losses to a level of 30% could be achieved by reasonable physical measures without presenting undue financial risks for the service providers and would be sufficient to cover the expected growth in demand. This would still call for investments of 465 million Euros, but this seems more than feasible, considering the annual 9.5 billion foreign exchange revenue generated in the region.

It's now or never

Mr. Gabric said. "We didn't expect this result. Non-revenue water turned out to be a huge reservoir." He reminds the audience of the importance of in-depth analysis, risk assessment and long-term-planning: "Do it now", he says. "We are already late. Climate change is here to stay, it will only get worse, and your infrastructure will have to meet the challenge." And Ranu Sinha seconded in her closing statement: "We need to wake up overall as a sector. It is high time to start acting. If we fail, people will suffer for years and decades."

Roundtable: How the Utility Management Training supports you to become a Utility of the Future

Date: Monday, 18 October 2021
Time: 15:45 – 17:00
Chair: Dr. Katerina Schilling, IAWD

Context and objective

The Utilities of the Future (UoF) is a World Bank program designed to catalyze, materialize and maintain transformational efforts in WSS utilities. Focus is placed on strengthening essential processes and development of future-thinking capabilities in a changing environment.

The Utility Management Training (UMT) program aims to equip current and future managers with specific tools and technologies in order to enhance the overall management culture in water utilities. Given the natural synergies, UMT and UoF started a cooperation, where the UoF, particularly through its diagnostics stage, helps utilities figure out "what processes need to be strengthened", while the UMT focuses on "how to do it". The Roundtable aimed to introduce both programs to a wider audience and share the experiences of active UMT participants.

Session structure (find the recording here)

Time		Content	Speaker
15:45	5'	**Introduction**	**Dr. Katerina Schilling**, Communication and Program Manager, IAWD, Austria
15:50	15'	**Elevator pitch:** **Fostering a management culture in the water service sector - the Utility Management Training** **Utility of the Future - Igniting transformation in water and sanitation utilities**	**Mr. Radoslav Russev**, UMT program developer, Bulgaria and **Mr. Camilo Lombana Cordoba**, Senior Water and Sanitation Specialist, World Bank, US
16:05	50'	**Roundtable discussion with Q&A from the audience**	Moderated by **Dr. Katerina Schilling**, Communication and Program Manager, IAWD, Austria **Speakers:** - **Mr. Radoslav Russev**, UMT program developer, Bulgaria - **Mr. Camilo Lombana Cordoba**, Senior Water and Sanitation Specialist, World Bank, US - **Ms. Alexandra Garagushkova**, Manager of Design Department, Sofia Water; Bulgaria - **Ms. Frosela Filo**, Head of Finance and Account Department, Korca Water Supply and Sanitation JSC, Albania - **Mr. Aleksandar Smiljanic**, Head of Department of Economic Affairs, KP

			Buducnost ad Laktasi, Bosnia and Herzegovina - **Mr. Jörg Karlhuber**, Managing Director, Energie AG Bohemia, Austria - **Ms. Sanyu Lutalo**, Senior Water Supply and Sanitation Specialist, World Bank, US
16:55	5'	**Wrap-up**	**Dr. Katerina Schilling**, Communication and Program Manager, IAWD, Austria
17:00		**End of session**	

Session summary

Dr. Katerina Schilling, Communication and Program Manager, IAWD, Austria, moderated this session with a focus on the relatively young IAWD Utility Management Training (UMT) program.

UMT - the new kid on the block

Mr. Radoslav Russev, UMT program developer, Bulgaria, opened with a presentation on the UMT program, which started its first course in 2021, with 20 participants from 15 utilities from seven countries. The program consists of eight modules on technical and management themes. It provides participants with tools and practices that improve their decision-making capabilities.

As the architect of the Program, Mr. Russev explains that the key challenge lies in deciding whether to go wide or to go deep, with the eight program modules trying to cover all key aspects of utility operations, viewing assets and their management from the technical, the financial, and the regulatory angle. From the start, the UMT has delivered it all, with all participants gaining insights into all dimensions of the water utility business down to the intricacies of customer management in a dedicated CMCS module.

Utility of the Future and UMT – a perfect match

Next, Mr. Camilo Lombana Cordoba, Senior Water and Sanitation Specialist, World Bank, presented the "Utility of the Future" program, a global initiative supported by the World Bank with the aim to promote to support service improvement in utilities. Designed to catalyze, materialize and maintain transformational efforts in WSS utilities, this program targets five elements of utility performance: financial management, human resource management, organization and strategy, commercial service and technology. "Utility of the Future" deals with innovative strategies, performance monitoring, identifying and overcoming challenges and performance gaps of the utilities, and gender gap reduction. The focus is on strengthening essential processes and the development of forward-thinking capabilities in changing environments.

Mr. Cordoba notes that the IAWD's Utility Management Training program aims to equip current and future managers with specific tools and technologies, improving the overall management culture in water utilities, corresponding with the World Bank's Utility of the Future approach.

Listening to the UMT participants

Ms. Alexandra Garagushkova, Manager of Design Department, Sofia Water; Bulgaria, then related her personal UMT experience, communicating the benefits her participation brought for her personally and for the utility where she is working. She especially appreciates the opportunity to meet colleagues from other utilities and other fields and the exchange of experiences in improving and progressing their companies, the valuable data collecting and comparing activities that constitute the course homework, and the self-confidence gained in presentations.

Mr. Aleksandar Smiljanic, Head of Department of Economic Affairs, KP Buducnost ad Laktasi, Bosnia and Herzegovina agrees. Being an economist himself, he says that he has profited vastly from gaining insights into all segments of the utility business, including the technical and customer service departments, and expects that his UMT participation will help him in the daily business of improving the service quality of his utility.

Ms. Frosela Filo, Head of Finance and Account Department, Korca Water Supply and Sanitation JSC, Albania, has a wide view of the theme, with her company participating in both IAWD's UMT and World Bank's

Utility of the Future. She recommends implementing both programs: Utility of the Future keeps a stronger future focus and motivates utilities to provide high quality services. UMT equips participants with hands-on methods for continuous improvement based on data gathering, comparing with the other utilities, knowledge sharing and promoting work culture. Combining both programs, Ms. Filo says, is a double step towards improved utility performance.

A long-term investment in performance improvement

Joerg Karlhuber, Managing Director, Energie AG Bohemia, views the UMT from the supporter perspective, with Energie AG acting as a program partner, not the least because there is a shortage of skilled professionals in the Czech Republic, recruiting new employees involves comprehensive training, and professional training programs are therefore most welcome. Energie AG itself sent three employees participating in the class of 2021. Mr. Karlhuber's message to employers is that yes, such a training is an investment in terms of staff hours and money, but it pays in the long run, because UMT graduates do not only perform better individually, they bring the skills to improve the overall performance of their utility.

In the final statement of the session, Ms. Sanyu Lutalo, Senior Water Supply and Sanitation Specialist, World Bank explained why the World Bank supports participants in the UMT with scholarships. Fully agreeing with the UMT Program's aim to equip current and future managers with the necessary tools and technologies to improve the overall management culture in water utilities, the World Bank has funded up to 80% of the course fees for selected participants of 2021. The decision to grant scholarships was made with special respect to the financial pressures caused by the Covid crisis and reflects the World Bank's appreciation of the quality of the program and the trust in its supporters.

Innovative technology for Water Security

Date: Tuesday, 19 October 2021
Time: 12:30 – 13:45
Chair: Mr. Stjepan Gabric, World Bank

Context and objective

By 2050, the UN estimates that 52 percent of the world's population will be at risk for water insecurity. Climate change is threatening water availability through increased temperatures and drought, unpredictable rain, and the continued threat of growing pollution. As the water supply and sanitation (WSS) sector continues to face increasing pressures, governments and service providers around the globe are under pressure to increase the WSS sector's resilience and sustainability.

Innovation and technology are increasingly emerging as key tools in dealing with the issue of water scarcity and safety, water service efficiency, and utility operations. This results in much greater willingness by academia, industry, and utilities to consider, plan, test and adopt promising technologies, and governments working on creating favorable conditions for companies that offer the latest technological innovations in the sector can help advance water security.

This session looked at the state of play when it comes to development of innovative technologies that have the objective to achieve water security, and present some of examples of the innovative thinking, state-of-the-art solutions that are already being applied, and enabling environments for their creation.

Session structure (find the recording here)

Time		Content	Speaker
12:30	5'	**Introduction**	**Mr. Stjepan Gabric**, Senior Water Supply and Sanitation Specialist, World Bank, Croatia
12:35	20'	**Digital water – key water management tool for 21st century**	**Prof. Vladan Babovic**, Department of Civil and Environmental Engineering, National University of Singapore
12:55	20'	**Israel experiences in developing and implementing innovative technology in WSS**	**Mr. David Balsar,** General Manager of innovation and ventures Mekorot Israel National Water Company
13:15	10'	**Corporate innovation acceleration and competitive environment in water sector**	**Ms. Leona Aslanova**, CEO, Innovation Starter Box, Bulgaria
13:25	10'	**Using online UV/VIS spectroscopy to monitor the raw water quality of the Viennese water supply**	**Mr. Christoph Wagner**, Chief Innovation Officer, S-can GmbH (in cooperation with **Vienna Water Company**)
13:35	10'	**Q&A**	Moderated by **Mr. Stjepan Gabric**, Senior Water Supply and Sanitation Specialist, World Bank
13:45		**End of Session**	

Session summary

The UN estimates that by 2050, 52 percent of the world's population will be at risk for water insecurity. Climate change is threatening water availability through increased temperatures and drought, unpredictable rainfall, and the continued threat of growing pollution. As the water supply and sanitation (WSS) sector continues to face increasing pressures, governments and service providers around the globe are under pressure to increase the WSS sector's resilience and sustainability. Can the world invent itself out of this growing calamity? It is a hope that seems to gather serious traction.

Innovations and technology are increasingly emerging as key tools in dealing with the issue of water scarcity and safety, water service efficiency, and utility operations. There is a growing willingness by academia, industry and utilities to consider, plan, test and adopt promising technologies, and governments work on creating favorable conditions for innovation that help to advance water security. To review the state of play, Mr. Stjepan Gabric hosted a panel of sector leaders to present some examples of the innovative thinking and state-of-the-art solutions.

Digital water – key water management tool for 21st century

First to take the podium was Prof. Vladan Babovic, Department of Civil and Environmental Engineering, National University of Singapore, with a close-up look at Artificial Intelligence applications in a smart city with high population density. Singapore with its 10,000 inhabitants per square kilometer is prone to highly localized rainfall that frequently produces local flash floods that are extremely difficult to predict. Combining AI and Machine Learning with an X-band radar array, the authorities have now sped up forecast processing to issue updates every 2 minutes. Singapore also applies AI-driven Natural Language Processing to process millions of tweets about floods and produce a georeferenced water level map of the city in real-time, and deep learning algorithms to deploy CCTV camera feeds in rainfall intensity monitoring. Prof. Babovic sees a Second Machine Age coming, predicting that human-AI teams will beat the performance of humans or AI working alone: "There is no reason to be afraid of such a future."

Israel – The Start-Up Nation"

Next, Mr. David Balsar, General Manager of Innovation and Ventures at the Israel National Water Company, introduced the audience to a big-thinking start-up culture in a small nation. Israeli tech enterprises frequently attract investments from S&P 500 companies. Mekorot, the National Water Company, works systematically to harness the innovative power in this start-up scene for the Water Sector.

For instance, IT security company IXDen has joined Mekorot to co-develop a software that monitors the health of water network technology like sensors, controllers and SCADA, and gives advance warnings when equipment is about to fail. Another example is a partnership between Mekorot and CQM Water to develop an on-site chlorine generation system that works without chemicals, instead using the existing water salinity to produce chlorine and disinfect the water.

Lately, Mekorot and Newsight Imaging have jointly developed Watersight, a spectral sensing technology to identify particles and bacteria for water quality inspection purposes, both on the domestic and the industrial level. To meet Mekorot's stated goal of reducing energy consumption by 8-10% per year, the company uses AI by "Evolution Water" to search out ways to raise the energy efficiency of water systems.

Aware of the growing importance of water recycling, Mekorot has also newly established an international R&D center for wastewater treatment and recycling.

The Water Sector in Israel, Integrative Water Resource Management in Israel

Dr. Diego Berger, Coordinator of International Projects at Mekorot then added a general overview of approaches to Integrative Water Resource Management in Israel, presenting four basic principles behind the success for the Israeli Water Sector:

- the "Measurement of water law" of 1955 ordering the measurement of all water supply and consumption,
- the "Water law" of 1959, nationalizing all water resources,
- the "Centralized Management", establishing one generally responsible water authority in 2005,
- and "The Israeli's Water Sector is self-financed" rule, also introduced in 2005 to motivate efforts to raise efficiency and develop innovative technologies.

Water prices in Israel are the same for domestic and agricultural use. A full 30% of the revenue is earmarked for financing future projects, enabling Mekorot to introduce innovative technologies in an effort to reduce the risks caused by climate change (i.e. floods and droughts).

Smart Cities: Joint Investment Call

A presentation on innovative investment strategies came from Ms. Leona Aslanova, CEO of Innovation Starter Box, Bulgaria. The company joined Sofia Water Company to co-develop "Warmer, Digital, Cosier", a smart city start-up program to improve safety, health, environment, connectivity, the jobs and the cost of living in Sofia.

Five of altogether 86 applications found approval and joined this start-up acceleration program:

- InnovaOne is a team of high school students with an innovative approach to measuring and improving water and air quality in their hometown Harmanli.
- CW Engineering is a team of six, working on "Innovative wastewater treatment and green energy for industrial and domestic use".
- DigitalTwin company develops a digital twin technology-based software platform to support businesses in their transition to Industry 4.0.
- Smart Water consulting proposes individual improvements, trainings and automation of the water companies after initial assessment of their processes, hardware and software.
- SatGeo is the winner project, an innovative technology for detecting hidden water supply network leaks combining GIS and satellite images. SatGeo succeeded in reducing non-revenue water far beyond initial expectations.

Using online UV/VIS spectroscopy to monitor the raw water quality of the Viennese water supply

The session's final presentation was delivered by Mr. Christoph Wagner, Chief Innovation Officer, s::can GmbH, about an innovative approach to water quality monitoring. UV/VIS spectroscopy observes the absorption or deflection of light by particles in water samples, measuring turbidity, color, organic molecules, nitrate and nitrite and special parameters like disinfection by-products, chlorine demand and chloramines.

With about 70 stations installed at springs, wells, and along Vienna's pipelines, UV/VIS monitoring offers a safety net that ensures the famously impeccable quality of Vienna's water. The technology allows for responding to pollution events by tracking turbidity and other parameters at stations along the pipeline and discharging polluted water before it enters the distribution network.

Roundtable: Do you speak Danubian? Breaching new communication paths for promoting the water sector in the Danube region

Date: Tuesday, 19 October 2021
Time: 12:30 – 13:45
Chairs: Dr. Katerina Schilling, IAWD and Ms. Helene Masliah-Gilkarov, ICPDR

Context and objective (find the recording here)

A variety of organizations and institutions actively work in the Danube region to not only highlight the importance of water but also target the challenges such as climate change, water security or wastewater treatment. The objective of the session was to gather representatives of various institutions active in the field and discuss how to jointly promote the water sector including all its users and stakeholders in the Danube Region, how to forge new synergies between various actors and institutions and how to promote new partnerships and increase the reach of the sector.

Session structure

Time		Content	Speaker
12:30	5’	**Introduction**	**Dr. Katerina Schilling**, Communication and Program Manager, IAWD and **Ms. Helene Masliah-Gilkarov**, Technical Expert on Public Participation & Communication, ICPDR
12:35	10’	**Elevator Pitch: Do you speak Danubian?**	**Mr. Konstantin Ivanov**, Regional Coordinator, Global Water Partnership (GWP) Central and Eastern Europe, Slovakia
12:45	40’	**Roundtable discussion**	Moderated by **Dr. Katerina Schilling**, Communication and Program Manager, IAWD and **Ms. Helene Masliah-Gilkarov**, Technical Expert on Public Participation & Communication, ICPDR **Speakers:** - **Mr. Konstantin Ivanov**, Regional Coordinator, Global Water Partnership (GWP) Central and Eastern Europe, Slovakia - **Ms. Jelena Janevska**, Knowledge Manager, Network of Associations of Local Authorities of South-East Europe (NALAS), North Macedonia - **Ms. Carolyne Herten**, Communications Officer, European Water Association, Germany - **Mr. Vittorio Graziano**, Junior Water Analyst, WAREG - European Water Regulators, Italy - **Mr. Alexander Raffeiner**, CEO, Raffeiner Reputation, Austria
13:15	15’	**Engagement with the audience including Q&A**	All participants

13:35	5'	**Wrap-up and next steps**	**Dr. Katerina Schilling**, Communication and Program Manager, IAWD and **Ms. Helene Masliah-Gilkarov**, Technical Expert on Public Participation & Communication, ICPDR
13:45		**End of session**	

Session summary

The Danube is the world's most international river, and to tackle climate change, water security, wastewater treatment and other similar challenges, we organize across an impossible number of languages, cultural and political barriers and borders. Quite successfully, as a matter of fact. But is there room for further improvement? Can we extend our reach? Find new partners? And - do we have to? A panel of water networkers and communicators sat down in search of a common language to promote common goals.

Helene Masliah-Gilkarov, ICPDR Technical Expert on Public Participation & Communication, and IAWD Communication and Program Manager Katerina Schilling hosted an open roundtable format featuring water networkers and communication experts, asking the blunt question "Do you speak Danubian?" The answers varied wildly.

Full-time Danubians, part-time Danubians…

Jelena Janevska, Knowledge Manager of NALAS, understands "Danubian" as a multi-level field for exploration of issues, challenges, solutions, best practices, and also failures, because those carry important lessons. Jelena feels she is only partly speaking Danubian, because she, and we all, are still far from communicating with enough impact to set the necessary agenda for politics.

Carolyne Herten, Communication Officer at the EWA, also declares herself "still learning", having only recently entered the water sector and being amazed at the huge diversity of themes and issues.

Vittorio Graziano, Junior Water Analyst at WAREG, occasionally speaks Danubian, because five nations of the Danube region are among the 25 European WAREG member nations.

Alexander Raffeiner, CEO of Raffeiner Reputation, does not dare to claim that he speaks Danubian, in spite of the fact that his agency has supported ICPDR since 2015. He defines his role as "complexity reducer", and his task to translate expert language to create clarity, reach and impact.

…and Danubians in love.

Konstantin Ivanov, Global Water Partnership Regional Coordinator for Central and Eastern Europe, confesses that he even speaks WITH the Danube: He prepared for Danube Day 2021 by kayaking the river for nine solid days, meeting many different people along the way, curious to learn what makes them tick, what is bugging them, what problems they wrestle with. "I urge you all to spend time by the river. You will find space and time for contemplation there. It changes your perspective and clears your mind."

Mr. Ivanov, formerly a journalist and communicator for environmental groups, looks at the many nations and capitals that the Danube connects. He advocates reaching out across borders, language barriers, even beyond the water sector community itself to agree, pursue and fulfill sustainability goals, and also to get the young generation on board. Climate change, floods and droughts touch everybody he says, and we are all in the same proverbial boat: "You cannot manage a river without getting really everybody on board, because what happens upstream affects everybody downstream and vice versa."

With this, the panel had arrived at the main issue: What does communication have to offer when it comes to promoting the water sector and creating new synergies with audiences?

Talking to ourselves?

Here, Jelena Janevska, would like to make a distinction between institutional and "real world" communication: "I'd like to see a paradigm shift", she says. "We need communication that stimulates participation and social change, messages that help people to develop an ownership of what they do."

This applies to the water theme in general and also to the Danube region. Communication for development is institutionalized at NALAS. It is based on interpersonal communication and takes an integrated approach. Working horizontally, it transports knowledge to those who need to make decisions, it encourages participation and includes those that are left out. That's how it helps to set the political agenda, which is desperately needed.

Vittorio Graziano agrees, adding that communication is crucial to create synergies between the institutions working in the sector to reach their target audience. Although a lot of information on environmental topics is available, it is often messy and all over the place. He suggests regular exchanges between the different institutions to synchronize external communication with stakeholders and provide reliable resources to their audiences.

Konstantin Ivanov noted that to increase its reach, the sector has to break the habit of talking to themselves: "Communicating about the Danube works pretty much like everything else. Tell the target group why this topic matters, why it is relevant to listen, and what they are supposed to do afterwards: If we take good care of the Danube it will make everybody's life easier. Don't, and bear the consequences. Climate, river basin management, social and economic issues – all are connected through the Danube, and we need to show people why this is relevant."

To which Carolyne Herten adds that the "talking to themselves" often happens in hard-to-understand technical jargon, and though this habit is hard to break, augmenting the sector's reach is impossible without clear, widely understandable communication. "Indeed. We have to reduce complexity to reach many of the people that are important for what we do", assists Alexander Raffeiner.

And Konstantin Ivanov says: "Communication is about connecting the dots. We have to make sure people understand they own the process. Those responsible have to bear their responsibility, for action as well as inaction."

Channels of our time – and time for the channels

Discussing possible channels for wide dissemination of messages in the digital age, the round inevitably ended up comparing notes on the role of social media. In this context, Jelena Janevska notes that many players in the sector are not investing enough into communication, constricting the available time to manage multiple social media channels: "I appeal to all colleagues out there to take communication seriously and integrate it into everything you do. Make it part of your management, otherwise you cannot expect to get results!"

That said, all panelists found themselves on the same set of social media: Twitter, LinkedIn, Youtube, with the occasional Facebook thrown in. They also agreed on two things: That they were miles away from opening TikTok accounts for their organizations, and they suffered from constricted time budgets. In this context, Jelena Janevska recommends to focus by asking three questions: "Ask who you are and pick media that fit you. Ask who your audiences are and send messages they can relate to. And thirdly, often neglected: How much time do you really have? Because you need to be there and keep your channel alive and post at least once a day."

Smart Utility Management for resilient water service provision

Date: Tuesday, 19 October 2021
Time: 14:15 – 15:30
Chair: Mr. Walter Kling, IAWD

Context and objective

What makes a well-functioning utility able to respond to day-to-day challenges and unpredictable events? This is the question this session attempted to answer.

All too often, ineffective and poor water service is the result of a vicious cycle of dysfunctional political environments and inefficiencies in water and sanitation utilities. Global forces—including climate change, water scarcity, abrupt changes in the environment (COVID-19), population growth, migrations, and rapid urbanization—exacerbate these challenges and threaten the provision of high-quality and sustainable WSS services, jeopardizing the possibility of providing "water and sanitation for all."

Smart and effective utility management practices are the foundation for building and sustaining the technical, managerial, and financial capacity of Water Supply and Sanitation utilities. The objective of the session was to define what practices makes a utility a well-managed utility and to share the experiences of utilities CEOs in the Danube region on their utility management and how they have responded to the inevitable challenges that emerge.

Session structure (find the recording here)

Time		Content	Speaker
14:15	5'	**Introduction**	**Mr. Walter Kling**, President, IAWD, Austria
14:20	10'	Lightning Talk: The Trial Reservoir: Driving a Revolution in Technology Adoption to aid Resilient Water Service Provision	**Dr. Piers Clark**, Chairman, Isle Utilities, UK
14:30	60'	**Panel discussion**	Moderated by **Mr. Walter Kling**, President, IAWD, Austria **Panelists:** - **Dr. Piers Clark**, Chairman, Isle Utilities, UK - **Mr. Teodor Popa**, CFO, Apa Brasov, Romania - **Ms. Sarah Keener**, Senior Social Development Specialist, World Bank, US - **Mr. Christian Hasenleithner**, CEO, Energie AG Bohemia, Austria
15:30		**End of session**	

Session summary

Yes, there are differences, and yes, they have a nasty habit of becoming glaringly visible during crises and emergencies: Well-functioning, well-equipped and well-managed utilities show, for obvious reasons, above average resilience. Far above average resilience, as a matter of fact. Reason enough for a distinguished round of specialists from various fields to sit down and discuss which difference is more important than all the others. Surprise: It's not technology, although the plenum round started with a big technological announcement bang.

Hosting the session, IAWD President Walter Kling first handed the floor to Piers Clark, Chairman of the Isle Group Ltd. Covering the field of technology and innovation, Dr. Clark held a ten-minute world premiere, for the very first time publicly revealing "The Trial Reservoir", a highly innovative approach to financing innovative technology. During his three decades in the industry, Mr. Clark had seen too many promising innovations wasting away because utilities took too long to find the necessary finances for even a trial. The Trial Reservoir puts promising innovations on a fast track by financing real-world trials in utilities. The very promising innovation tool will enter the market at the beginning of 2022.

Technology or finance?

Next, Teodor Popa, Financial Manager of the Compania Apa Brasov utility took the stage, looking at resilience from the monetary perspective: "Above all, utilities need to be financially solid." Mr. Popa vividly remembers the first moths of the Covid crisis, when his utility and many in the sector had to compete for personal protective equipment and other resources "amid those who had the money and grabbed the stuff first."

Sarah Keener, Team Lead, Inclusion in Water at the World Bank, reminded the audience that while finding ways to implement technical innovation is indeed critical, water companies also need to be nimble in their relations to staff, customers and the general public. "Aligning with customers more broadly and having an inclusive workforce will strengthen the ability of utilities to raise political capital."

Culture and the human factor!

When it comes to resilience, Christian Hasenleithner, CEO of Energie AG Bohemia, is generally fond of bottom-up solutions. For him, resilience is a state of mind: "We have to look beyond the horizons and introduce a mindset and team spirit to be prepared personally and as a company." Which is a smart investment that does not even need to overcome the financing barriers that often stops technological innovation. Utilities that want to invest into smart new tools need to convince owners and also their staff, the latter being, according to Mr. Hasenleithner, "far less difficult than convincing politicians".

In the ensuing discussion, the panel widely agreed that while a solid financial background is a must and the ability to make the necessary investments into technology is helpful, the human factor makes all the difference when it comes to strengthening resilience.

"You need a workforce that is diverse by gender, age and specializations. You need people who think outside the box, who are agile in responding to situations", says Teodor Popa. And Sarah Keener reminds the audience: "If you are trying to secure financing, you need political trust. To get political trust - are you listening to customers and others? Do you have the right staff? Are your policies and systems and company culture aligned? How do you partner with the broader public?"

And Piers Clark agrees: "If I was a manager I wouldn't focus on tech and financing but cultural issues. It's about overcoming silos, stuck historic approaches, cultural barriers. You can wrap your arms around funding and technical issues, but cultural issues require emotional intelligence to get the best from your staff."

Transboundary water cooperation: Progress and emerging challenges

Date: Tuesday, 19 October 2021
Time: 14:15 – 15:30
Chair: Mr. Raimund Mair, World Bank

Context and objective

Water does not respect geopolitical boundaries and hydrological systems are oblivious of international relations. This increases the challenge for water managers, financiers, and water users to ensure the sustainable use of this essential resources for the economy and societies in the context of climate change while cutting pollution and maintaining and improving the function of the aquatic ecosystems. Hence, when water cuts across borders, it poses economic, financial, logistical, and political challenges for people trying to manage and develop the resource. This is particularly the case for the international Danube River Basin, which is the most international river basin in the world.

International water cooperation in the Danube River Basin builds on significant experience and tradition, fostered by the Danube River Protection Convention signed by Danube countries in 1994, and which forms the legal basis for the International Commission for the Protection of the Danube River (ICPDR). Another important example, at sub-basin level, is the Framework Agreement on the Sava River Basin, which addresses transboundary cooperation in the Sava as the richest-in-water Danube tributary. Furthermore, the Water Convention of the Economic Commission for Europe (UNECE) is a unique international legal instrument and intergovernmental platform which aims to ensure the sustainable use of transboundary water resources by facilitating cooperation. The UNECE also fosters technical exchange and capacity building on particular water-related topics.

2021 is a highly important year for the joint management of Europe's water resources since with December the deadline for the publication of the updated generations of River Basin and Flood Risk Management Plans is approaching. The plans are based on the requirements stemming from the EU Water Framework Directive and the EU Floods Directive and are key planning instruments for the upcoming 6-years cycle from 2021-2027 at both, international and national level.

The objective of the session was to inform participants about the latest developments regarding transboundary water cooperation in the Danube Region. Speakers provided information on the most significant water management issues, approaches to ensure the sustainable management in the future, and how activities contribute towards the goal of a water secure and resilient Danube Region.

Session structure (find the recording here)

Time		Content	Speaker
14:15	5'	**Introduction**	**Mr. Raimund Mair**, Senior Water Resources Management Specialist, World Bank, Austria
14:20	15'	How the UNECE Water Convention supports transboundary water cooperation in the Danube region and worldwide	**Ms. Sonja Koeppel**, Secretary of the Water Convention, United Nations Economic Commission for Europe (UNECE)
14:35	15'	The draft 3rd international River Basin Management Plan for the Danube River Basin	**Ms. Edith Hödl**, Permanent Secretariat, International Commission for the Protection of the Danube River (ICPDR), Austria

14:50	15'	The draft 2nd international Flood Risk Management Plan for the Danube River Basin	**Mr. Igor Liska**, Permanent Secretariat, International Commission for the Protection of the Danube River (ICPDR), Austria
15:05	25'	**Q&A and discussion**	All participants
15:30		**End of session**	

Session summary

Water does not respect geopolitical boundaries. Hydrological systems ignore international relations. Wherever water cuts across borders, those who are in charge of protecting, managing and developing the resource face additional economic, financial, logistical, and political challenges. The Danube River Basin is a case in point, being the world's most international river basin.

2021 marks a milestone for the joint management of Europe's water resources: December brings the deadline for the publication of the new, updated generation of River Basin and Flood Risk Management Plans. These all-important planning instruments aim to meet the requirements stemming from the EU Water Framework Directive and the EU Floods Directive and cover the upcoming 6-years cycle from 2021-2027 at both national and international level.

Danube Water Program Task Team Leader Raimund Mair led this session with the objective to inform participants about latest developments regarding transboundary water cooperation in the Danube Region, and beyond.

How the UNECE Water Convention supports transboundary water cooperation in the Danube region and worldwide

First, Ms. Sonja Koeppel, Secretary of the Water Convention, United Nations Economic Commission for Europe (UNECE) introduced current developments on transboundary water management at the UNECE, including lessons for the Danube region. She reminded the audience that almost two thirds of all freshwater resources worldwide are shared by two or more countries, with the Danube the world's most international river, sharing a basin with 19 countries.

Transboundary water cooperation is therefore crucial for peace, climate adaptation, economic development, and human wellbeing. To succeed, it has to overcome considerable challenges, most importantly, differences between national administrative and legal frameworks, resource constraints, friction in data exchange and, of course, financing. To address these challenges, the Water Convention promotes capacity building and an exchange of experiences between countries that share freshwater resources, aiming to improve national and regional water governance.

The Water Convention work program 2022-2024 focusses on monitoring assessment, financing and climate change adaptation on a national, regional and global level. The funding and financing of transboundary water cooperation and basin development happens in cooperation with the World Bank, the European Investment Bank, and many others. Creating the crucial enabling environment requires adequate legal and institutional frameworks and strong governance.

With a special focus on the Danube region, Ms. Koeppel named water allocation in transboundary contexts, climate change adaptations in transboundary basins, the water-food-energy-ecosystems nexus in transboundary basins and the development of legal frameworks for transboundary water cooperation as important topics. She closed her presentation with the UNECE Project on hazard and crisis management in the Danube Delta, where the ICPDR is also involved.

River Basin Management Planning in the Danube River Basin

Ms. Edith Hödl, Technical Expert for River Basin Management, International Commission for the Protection of the Danube River (ICPDR), subsequently gave an overview of the ICPDR and the latest developments on River Basin Management planning by the commission.

The legal instrument for cooperation on transboundary water management is the Danube River Protection Convention (DRPC) of 1994. River Basin Management happens on three levels of coordination:

- Basin-wide level – where ICPDR operates on catchment areas above 4000 sq.km. like The Danube River catchment area
- National level – internationally coordinated sub-basin level (e.g. Sava and Tisza)
- Sub-unit level – management units within the national territory

There are two Management Plans for the Danube River Basin, with update cycles of 6 years. The Danube River Basin Management Plan addresses significant water management issues, organic pollution, hydro-morphological alterations and climate change, and the Danube Flood Risk Management Plan.

The commission made significant progress regarding organic pollution within a relatively short time, with shifts to enhanced technologies and big investments in the wastewater sector between 2005 and 2018. There was also good progress regarding hydro-morphological alterations in the Danube River Basin with improvements of river continuity (e.g. fish passes), the reconnection of wetlands and floodplains and improvement of morphological conditions (river restoration) underway since 2009.

Additional activities of the ICPDR aim at adaptations to climate change. Those include:

- the ICPDR Strategy on Adaptation to Climate Change, issued in 2012 and updated in 2018,
- the report “Effects of Climate Change (Drought, Water Scarcity, Extreme Hydrological Phenomena and other Impacts)”, updated in 2021,
- the introduction of the Danube Hydrological Information System (HIS) which will provide basic hydrological and meteorological data in near real-time,
- and activities to improve the water balance of the Danube River Basin to prepare for future water quantity challenges.

Flood Risk Management in the Danube River Basin

The session’s final presentation was delivered by Mr. Igor Liska, Technical Expert in Water Management / Water Quality, International Commission for the Protection of the Danube River (ICPDR), Austria, covering the last 20 years of major flood events in the Danube River Basin.

ICPDR responds to flood risks with the Action Program on Sustainable Flood Protection in the Danube River Basin, adopted in 2004. Meanwhile, the EU Floods Directive is undergoing implementation in three steps, introducing preliminary flood risk assessment between 2011 and 2018, flood risk and flood hazard maps from 2013 until 2019 and flood risk management plans between 2015 and 2021.

The ICPDR’s objectives in this field are avoidance of new, and reduction of existing risks, strengthening resilience, raising awareness and upholding the solidarity principle. Strategic level measures for the majority of the countries in the basin include natural water retention, introduction of warning systems, raising awareness, and reducing contamination risks from sites in floodplain areas. Flood Risk Management Plans include textbooks that present best practice examples in a comprehensive manner, enabling even non-experts to appreciate risks, measures, results, and what works for the Danube River Basin.

Mr. Liska’s take-home messages are: The implementation of flood risk management measures during the first cycle of the Floods Directive implementation contributed to a significant reduction of flood risks in the whole river basin. Furthermore, the joint implementation of the Floods Directive by EU Member and non-EU Member states strengthened the common view on the holistic flood risk management approach in the whole Danube River Basin.

Ask me Anything: Everything you wanted to know about water

Date: Tuesday, 19 October 2021
Time: 16:00 – 17:00
Chair: Ms. Elisabeta Poci, SHUKALB

Context and objective

The intention of an Ask me Anything sessions is to transparently engage with the audience. The session worked exactly as its name suggested. After a short introduction of the speaker, the floor was opened to questions, which were about anything at all.

Session structure (find the recording here)

Time		Content	Speaker
16:00	5'	**Introduction**	**Ms. Elisabeta Poci**, Executive Director, SHUKALB, Albania
16:05	50'	**Ask me Anything**	**Mr. Gustavo Saltiel**, Lead Water and Sanitation Specialist, World Bank, US
16:55	5'	**Wrap up**	**Ms. Elisabeta Poci**, Executive Director, SHUKALB, Albania
17:00		**End of session**	

Session summary

Gustavo Saltiel has more than 30 years of experience in the water and sustainable development sectors. After serving, among other positions, as General Manager of Aguas Bonaerenses, a state-owned water utility serving 2.5 million inhabitants in the Province of Buenos Aires, Argentina, Gustavo joined the World Bank in 2003 as Senior Water Engineer in the Latina America Region. He then was appointed Sector Leader for Sustainable Development in Mexico and, more recently, Program Manager in the Africa Region, leading the Nile Basin and Cooperation in International Waters programs, as well as the Water Program in Kenya and the "mega" Rural Sanitation Program for Results in Egypt. We greatly appreciate that he found the time to sit down for a uniquely informal Q&A with Elisabeta Poci, Executive Director of SHUKALB, and the audience.

Looking back on his impressive career, Gustavo Saltiel remembers that as a civil engineering student he chose a specialization in environmental and sanitary engineering because here, many Latin American countries were lagging behind, and the opportunities to contribute were huge.

Saltiel started his career in rural Argentina, later switching to urban issues, and found working to improve the lives of communities immensely rewarding.

Three fulfilling decades

Later on, as a manager of a big state-owned water company he had to balance political pressure, public demands and a unionized staff: "It was a fantastic job, but at the same time complicated. A politician wants to cut the ribbon at a new plant that has no water connection yet, and you have to improvise something while at the same time a quarter of the city runs out of water because of maintenance. And while you try to solve that a Union representative enters your office without knocking, asking what keeps you from paying the promised salary raise. But there were the good days when you could concentrate on serving your community, and that's so uniquely fulfilling that you can afford a bad day with the union."

A laboratory for change

Gustavo Saltiel views the Danube region as something like a laboratory for change: “The Danube Water Program is actually a microcosmos of what we are trying to do everywhere in the world.”

This includes capacity-building efforts, and Mr. Saltiel mentions that, according to a recent OECD survey, lack of staff affects 67% of all utilities. “I think the national water associations should put emphasis on investing in people like you invest in infrastructure.”

He also feels that motivation and a positive image is at least as important as financial compensation: “Water utilities in many countries suffer from “Old State Syndrome” - antiquated, old fashioned, not attractive for young people. You need to give a sense of mission. Here, the water sector in many countries failed to communicate strategically. Society only hears about utilities when there is a problem.”

A revolution underway

Mr. Saltiel thinks that this is about to change: “The aftermath of the Covid crisis gives us a tremendous opportunity. It has shown the importance of water for crisis handling and recovery. Water security will be extremely important in building resilient, green societies. We have a fantastic opportunity to rethink the water sector.”

An important driver of this change will be digitalization, says Gustavo Saltiel: “Smart utilities are indeed a revolution with impact on the whole business. Digitalized governments and regulators can monitor data real-time. Regulators can decide in much shorter intervals and smarter. Digital will change the way utilities are regulated. In short: We are facing changes and chances we have not seen in 100 years.”

Stakeholder consultations: Water Security Diagnostics

Date: Tuesday, 19 October 2021
Time: 16:00 – 17:00
Chair: Mr. Eduard Interwies, InterSus - Sustainability Services

Context and objective

Water Security is about building a water secure future for the people, the economy and the environment in the light of global, regional and local changes. Extending the scope of previous analytical work conducted in the frame of the Danube Water Program like the State of the Sector Reports, important work is ongoing for the development of a Water Security Diagnostics for the Danube Region, analysing aspects of water sector outcomes, performance, architecture, and endowment. The work is supported by a consortium around the International Institute for Applied System Analysis (IIASA) and is addressing the broader water sector, aiming to analyse and identify key issues which need to be tackled in order to achieve a resilient and water secure Danube Region at national and regional level.

Building on the information provided and discussions in other related sessions in the frame of the Danube Water Conference, the objective of this interactive session was to discuss issues and gain feedback from participants on key water security issues in the Danube region - now and in the future - which require particular attention. In addition, the question was addressed regarding the challenges that need to be overcome in order to move to tangible action outcomes for a more secure water future for the Danube region. The results of the discussion will allow to further fine-tune and steer the work in the coming months for the preparation of the Water Security Diagnostics for the Danube Region.

Session structure (find recording here)

Time		Content	Speaker
16:00	5’	**Introduction**	**Mr. Eduard Interwies**, InterSus - Sustainability Services, Germany
16:05	10’	**Ignite Talk: Water Security in the Danube Region**	**Mr. Raimund Mair**, World Bank, Austria
16:15	45’	**Moderated discussion**	Moderated by **Mr. Eduard Interwies**, InterSus - Sustainability Services, Germany, Germany
17:00		**End of session**	

Session summary

Water Security is about building a water secure future for humans, the economy and the environment in the face of global, regional and local changes. Extending the scope of previous analytical work like the Danube Water Program State of the Sector Reports, efforts to develop Water Security Diagnostics for the Danube region are ongoing, examining water sector architecture, performance, endowment and outcomes.

Supported by a consortium around the International Institute for Applied System Analysis (IIASA), this research takes a broad approach to identify and investigate key issues that the sector has to address to achieve a resilient and water secure Danube region at national and regional level.

Water Security Diagnostics Research Consortium member Mr. Eduard Interwies, of InterSus Sustainability Services led, this discussion format aiming to raise questions and gain participants’ feedback on key water security issues in the Danube region, gathering input for the further development and honing of the water security diagnostic tools under development.

Water Security in the Danube region

Mr. Raimund Mair, senior water resource management specialist and Task Team Leader for the Danube Water Program, gave an ignite talk highlighting the socio-economic framework and background issues relating to water security in the Danube region.

Mr. Mair started with an overview of the region, indeed the world's most international river basin, with hugely diverse landscapes and significant differences in water resources, climate, political situations and socio-economic circumstances: Some countries in the region produce the highest GDP per capita in Europe, others the lowest. A significant share of the population - about 1.7% region-wide - lives below the poverty line of 2.5 U.S. dollars per day. Continuous population decline has slowed down in recent years, but is, nevertheless, ongoing. About 63% of the region's population live in urban areas, and most rural areas are depopulating. In some cases, cities in remote locations now run oversized infrastructures for shrunk and still shrinking populations. Challenges in access to water services are most pronounced in rural areas that depend on agriculture as their main income source and are undergoing a, sometimes stressful, structural transformation during of EU accession processes.

Mr. Mair names EU accession and integration as a key driver for water sector development and policies in the region. Specific EU legislation drives and governs the water sector, prominent among those the EU Water Framework Directive, Flood Directive, Drinking Water Directive and Wastewater Treatment Directive. EU member states are striving for compliance.

Candidate and potential candidate countries are committed to harmonization of their national legislative frameworks. Consequently, there are significant policy reform, capacity building and investment needs for EU approximation and for reaching compliance of EU member states with regard to the EU directives.

Regarding water supply and sanitation, a still present gap in access to piped water is slowly closing, and access to piped water supply in the region has recently risen to 85%. However, in the less populated parts of the region, further improvement remains a challenge. With regard to sanitation services, it is noteworthy that only five countries in the region can provide more than 70% of their population with safely managed sanitation services, some countries manage less than 25%, and altogether, some 60% of the Danube region's population are connected to sewer networks. Significant investments in wastewater have been made in longstanding EU member states, some recently joined members and candidate countries face under-investment challenges and difficulties to comply with the Wastewater Directive.

Furthermore, while the Danube region is relatively rich in water resources, those are not evenly spread, and significant differences exist among individual parts of the basin. While no country of the Danube region is considered water scarce, some are water stressed or close to water scarcity, including the Czech Republic, Kosovo, Bulgaria, Macedonia and others whose water resources per capita are far below the regional average.

With regard to climate change, Mr. Mair points out that precipitation totals are expected to decrease in parts of the basin, specifically in the Southeast. Droughts are increasingly an issue, with quite a pronounced seasonality between summer precipitation and winter precipitation. Although overall annual mean precipitation levels may remain unchanged, changes in seasonality can produce prolonged droughts, while at the same time increasing temperatures may trigger additional water demand.

The introduction of integrated flood risk management in the region is mainly driven by the EU Flood Directive. Joint implementation efforts are ongoing, with EU member states teaming up with non-EU member states, strengthening a region-wide holistic flood-risk management approach. While there are data gaps in some countries, the EU Floods Directive is now the commonly accepted framework for flood-risk management, followed by EU member states as well as candidate and associated countries.

Regarding waterbodies status quality and biodiversity aspects, Mr. Mair describes the need to balance anthropogenic water use-related pressures against the necessity to protect healthy aquatic ecosystems. The main driving force here is again the EU Framework Directive, and the Nature Directives. They trigger significant investment needs to, for instance, address point source pollution and diffuse pollution sources stemming from agriculture and hydromorphological alterations. Further investments will be necessary to restore river systems. The Water Framework Directive has set a challenging 2027 deadline, and there are still numerous gaps in monitoring, where full data and information should become available as soon as possible.

Water security has both a national and an international dimension. Consequently, the ICPDR has highlighted several issues that need to be addressed on a basin-wide level. This includes joint pollution reduction measures, hydromorphological alterations, and the new topic of climate change effects like droughts, water scarcity and extreme hydrological events, which will all be addressed in the New River Basin Management Plan. While the more traditional theme of flood risk management is the theme of the Floods Directive, other ongoing basin-wide integration efforts cover inland navigation, hydropower, agriculture and climate change. Additionally, the river basin organizations tackle not only coordination, but also, to some extent, transboundary capacity building. Implementation of the measures is largely subject to national level management, and investment programs are in place in order to support implementation.

Asking how to best implement necessary measures, Mr. Mair quotes a simplified theory of change which helps to define what an intervention is trying to achieve and how to achieve it: Step one is identifying the problem. For instance, proper information on the effects of pollution on health or threatened species, and sectorial information on the impact and relevance of water for sectors like agriculture and energy will help to clarify the desired outcomes like, e.g., good status for waterbodies, access to water services and safe water supplies for humans, food security etc.

Additional factors are projections on economic development and the related additional pressures on water resources, consumption patterns, and, of course, assumptions about the effects of climate change which figure prominently in water management approaches in the region. Consequently, there is need for an integrated approach to accommodate different sectorial needs by matching infrastructure development plans with ecological objectives. Integrating all these aspects requires a strong institutional framework, capable of integrated water resource management and planning.

Step two is defining the necessary intervention and the goal it has to achieve. This covers the desired outcomes and outputs, and the necessary activities and inputs to reach them, including budgets and staff availability to do ensure the necessary output.

However, when designing measures for policy interventions, it can be helpful to think from the end towards the start, first defining the outcomes in a broader context, including individual sectorial needs, and then defining the desired outcomes and the outputs they demand. How many wastewater treatment plants do we need? Will there be demand for irrigation systems in the agricultural sector? Do we need to strengthen institutions and set up specific funding instruments to create the output and reach the outcome? Assessments of specific activities are necessary to achieve this. For instance, delivering training, establishing funding instruments and finally allocating the budget and the staff in order to get these activities on track.

Finally, Mr. Mair outlined the Water Security Diagnostics Framework of the World Bank. It looks into water security outcomes in a broader context, including economic, social and environmental outcomes, followed by an assessment of the water endowment and the specific entry points for actions like infrastructure, strengthening institutions, governance approaches, and the financing of measures. It also includes assessments of water sector performance and future trajectories, leading to recommendations on how to strengthen approaches to water resource management and which actions are necessary to achieve certain outcomes. Consequently, the Danube Water Security Diagnostics launched in 2021 as part of the Danube Water Program. Its focus is on broad sectoral analysis building on existing work, pointing out key water management issues in the region, in a format that is digestible for non-water experts, which supports discussions with countries on reform and investment needs. Following a broad analysis, there will be more in-depth country-specific analysis and profiles and the development of a regional narrative, providing country benchmarking but also pointing out regional issues that need to be addressed and taken into account in national management approaches.

Engaging the audience – an open discussion

After Mr. Mair's presentation, a poll started. The first question was an audience survey, showing that research institutions and consultancy had the highest shares of participants, with each at 27%, followed by international organizations/donors at 18%, while water management authorities and NGOs tied at 9% each. Interestingly, there were no participants from the water utility sector.

Next, ranking the most pressing present and future Danube-wide water security challenges, adaptation to climate change came up first, followed by resilience against floods and resilience against droughts. Water and agriculture ranked fourth and biodiversity fifth, wastewater and sanitation sixth and water and energy

wound up seventh. Water supply and navigation ranked lowest respectively. Adaptation to climate change touches all other issues as an overarching umbrella of all issues in the Danube region.

Asked what should be improved and what can be done to face the challenges at national level, the audience ranked political support first. Financing and intersectoral coordination came up second and third respectively. Legal framework ranked fifth, reflecting the clarity of the legal framework in the Danube region, particularly when it comes to the implementation of the Water Framework Directive, the Floods Directive and other relevant EU legislation. However, with the 2027 deadline looming, the challenges are pressing. For example, more than 400 fish migration aids should be in place by 2027, but only 120 have been built during the last 12 years due to lack of financing. A future expansion of the existing supporting programs will be necessary.

The final question asked what would help to face the present challenges at transboundary level. Intersectoral cooperation at transboundary level emerged as the first priority here, followed by improved coordination/ cooperation, third was coordination of water related economic development programs, followed by cost effective financing at basin level, and strengthening the international institutions and legal frameworks respectively.

In conclusion, it emerged that in the prioritization of measures, a holistic approach is necessary. In addition, financing options should ensure that there is political will not to finance counterproductive developments.

Fostering an innovation culture to support utility modernization

Date: Wednesday, 20 October 2021
Time: 12:30 – 13:45
Chair: Mr. Philip Weller, IAWD

Context and objective

Innovations are driving development in all aspects of life, and the water sector cannot be left out. Current and future water solutions to address water challenges require innovation in science, technology and practice within the water sector and beyond. Smart homes, nano membranes or drop irrigation are just some examples in which water management is innovating based on new scientific insights and the latest technologies. Innovations in the water sector are driving efficiency and the preservation of water, energy efficiency and exploiting previously untapped resources from wastewater. They are improving our ability to cope with disasters and form an essential part in building the green economy of tomorrow. Yet many decision makers are unaware of the opportunities water innovations provide to reduce costs and create sustainability. The objective of this session was to highlight the importance of innovations in the water sector, and to increase our understanding of existing opportunities and how science and technology are crucial in developing the water sector of tomorrow.

Session structure (find the recording here)

Time		Content	Speaker
12:30	5’	**Introduction**	**Mr. Philip Weller**, Head of Technical Secretariat, IAWD, Austria
12:35	10’	**Lightning Talk: Innovation needs in the water service sector**	**Ms. Andrea Gysin**, Head of Research, Development and Innovation, Thames Water, UK
12:45	60’	**Panel discussion**	Moderated by **Mr. Philip Weller**, Head of Technical Secretariat, IAWD, Austria **Panelists:** - **Ms. Andrea Gysin**, Head of Innovation Partnerships, Thames Water, UK - **Mr. Lyubomir Filipov**, Strategic partnerships and projects Director, Sofia Water, Bulgaria - **Dr. Blanca Antizar**, European Director of Consultancy, Isle Utilities, UK - **Dr. David Tyler**, Water Sector Specialist, European Bank for Reconstruction and Development, UK
13:45		**End of session**	

Session summary

Yesterday's business as usual cannot cope with tomorrow's challenges, and the water sector is no exception. Will we be able to innovate our way out of climate change, water scarcity and rapid urbanization? Maybe yes. After all, by coming up with a vaccination within a short year, humanity has innovated its way out of the Covid crisis. Water-related innovation has already brought us smart homes, nano membranes and drop irrigation, to name just a few. Yet, many decision makers in the water sector are unaware of the opportunities water innovations provide to reduce costs, create sustainability and help us move towards the green economy of tomorrow. This session set out in search of ways to implant a culture of innovation in the traditionally conservative water sector.

For the kickoff presentation, host Philip Weller, IAWD's Danube Water Program Coordinator, introduced Andrea Gysin, Head of Research, Development and Innovation at Thames Water, Great Britain's largest utility, noting that for the very first time in his long career he has met an innovation specialist working full time in a water company.

A world of opportunities

Ms. Gysin walked the audience through the innovation strategy, culture and ecosystem of a private utility serving 15 million customers from source to tap and taking pride in issuing the lowest water bills in the UK.

"There is a world of opportunities to do more with what we have", says Andrea Gysin, in the same breath urging utilities to be clear about their priorities. With the intention to drive costs down, keep risks down and to respond to changing regulations, Thames Water has set five priorities: Reducing leakages, driving pollution down to zero, ensuring continuous supply, introducing cost effective, low carbon solutions and pushing for carbon neutrality.

Innovation does not happen in splendid isolation, though, rather in a highly complex ecosystem of stakeholders including regulators, suppliers and academia. She stressed that the real challenge lies in moving from point solutions to the systems level and to take the whole company along on the journey: "We can't transform without engaging everybody and empowering our people to innovate." Which, again, is impossible without leadership and a champion of innovation at the top of a company.

Strategic partnerships are a cornerstone of the Thames Water innovation culture: "Wherever it makes sense, we team up to drive change," says Andrea Gysin, also mentioning that single-mindedness can be a trap: "When things don't work, you need to know when to stop."

Tradition versus innovation

Next to take the stage was Lyubomir Filipov, responsible for strategic partnerships and regulation at IAWD member Sofia Water. His company dips into Bulgaria's startup ecosystem which is thriving with the help of partially private and partially EU-funded venture capital. The program started out by identifying a suitable venture capital team, eventually teaming up with a partner company that runs its own accelerator program, teaching startups everything from financial planning and strategy development down to marketing. Together with this venture capital partner, Sofia Water launched a call for green innovations, selecting six candidates from altogether 80 applications, and entering those into a two month acceleration program.

After a final pitch, Mr. Filipov's team picked two startups for real-world evaluation, one that has invented a leakage identification system through data analysis combined with satellite images, the other developing a device for smart water quality testing in the network. Poised to repeat the process annually over five years, Mr. Filipov expects boosts not only for his company and the startups involved, but for the whole sector: "People believe that the water sector is very traditional, with nothing interesting happening here. We are out to prove them wrong."

A cultural shift is underway

There is indeed a cultural shift underway in the sector, says Blanca Antizar, European Director of Consultancy at Isle Utilities, a company that acts as an innovative technologies catalyst for 300 companies worldwide: "Utilities are under increasing pressure to meet growing demands and challenges. They need to invest, they increasingly develop an understanding of how science and innovation can help, and they are increasingly willing to take risks. The internet plays a large role here, quickly spreading news of new technologies and innovations."

Much like all the panelists before her, Ms. Antizar stresses the huge potential in innovative technologies and the importance of communication: “We strongly believe that evaluating innovation is a job for humans, not for algorithms. Yet we have to speed up technology adoption cycles. In the water sector, implementing a new technology typically takes up to ten years, and few startups can secure enough funds to survive that long. We have to speed things up, and here it is important to help emerging technology players understand how the sector works, how to interact with investors and how to get into a conversation from the earliest stages of a development.”

Isle Utilities believes in bringing all key stakeholders together in networks like the Water Action Platform, where thousands of members from everywhere on the planet share best practices and learn about successful innovation: “It’s the right thing to do and it is for the benefit of us all.”

Financing innovation

Treating innovation culture from the investment angle, David Tyler, Water Sector Specialist at the European Bank for Reconstruction and Development took the stage. While the EBRD has engaged in initiatives like the Green Cities Program that mobilized investments to the tune of three billion Euros in 51 cities, the bank defines itself less as an innovator, and rather as a fast follower: “Our clients want to make safe investments, and therefore our projects need to be bankable.”

Yet the EBRD is keenly aware of the value of and the need for innovation: “During the Green Cities program we have progressed from traditional issues to blue/green infrastructure and smart digitalization projects. We are aware that there is a need to connect people who offer innovative solutions with cities in search of new approaches, and we hope to launch a platform next year that will facilitate matchmaking between cities, innovators and investors.”

Communication as innovation booster

In the following discussion, the panelists mentioned numerous stumbling blocks on the way to a working innovation culture, the most important being company size. Here, Andrea Gysin mentions that while investments in latest technology can be an unsurmountable challenge for small utilities, collaboration models can help: Big companies like Thames Water, sometimes slowed down by their sheer size, could team up with smaller utilities, using them as test pads for promising innovations.

Another, and maybe the biggest challenge of them all is communication: “We need to talk more, both inside the company and across the sector, because with communication comes cultural change”, says Blanca Antizar. Lyubomir Filipov adds that this needs top-down support: “There can be no cultural shift without leadership, and in a sector as conservative as ours, it is important not to push, but to convince in a prolonged, ongoing discussion that involves everybody in the company. This process takes time.” Mr. Filipov closes with a quote from his favorite book, Lean Startup by Eric Ries: “Reading is good, but action is better. Let’s act!”

Integrating green and grey infrastructure for water security and climate resilience

Date: Wednesday, 20 October 2021
Time: 12:30 – 13:45
Chairs: Ms. Kathia Havens, World Bank

Context and objective

In order to tackle the challenges of climate change and water security, innovative approaches combining traditional (grey), and natural (green) infrastructure are needed. Combined with traditional infrastructure, natural infrastructure, such as wetlands, forests, and even soil, can help to maintain and protect water resources from the effects of climate change, such as floods and droughts, and provide solutions to diverse challenges across the water sector.

The objective of this session was to raise awareness and provide an overview of nature-based solutions, introduce a framework from which to evaluate them, and guidance regarding enabling conditions and incentives for implementation. These topics were covered in the opening presentation and supported by examples from the Danube region.

Session structure (find the recording here)

Time		Content	Speaker
12:30	5’	**Introduction**	**Ms. Kathia Havens**, Program Analyst, World Bank, Austria
12:35	20’	Green and Grey, a new generation of infrastructure to tackle the challenges of water security and climate resilience	**Mr. Klaas de Groot,** Senior Water Resources Management Specialist, World Bank
12:55	15’	Harnessing nature for sustainable water resources management	**Ms. Irene Lucius**, Regional Conservation Director, WWF Central and Eastern Europe
13:10	15’	Natural solutions for rural wastewater treatment	**Dr. Günter Langergraber**, Head of Department, University of Natural Resources and Applied Life Sciences, Vienna (BOKU), Austria
13:25	20’	**Q&A and Discussion**	Moderated by **Ms. Kathia Havens**, Program Analyst, World Bank, Austria
13:45		**End of session**	

Session summary

Innovative approaches combining traditional grey, and natural green infrastructure are needed to meet growing challenges of climate change and water security. Natural infrastructure, such as wetlands, forests, and even soil, can help to maintain and protect water resources from floods and droughts, and provide solutions to challenges across the water sector. This session explores nature-based solutions, frameworks from which to evaluate them, and how to create conditions and incentives for implementation.

Ms. Kathia Havens, Program Analyst, World Bank, introduced the session's speakers, Mr. Klaas de Groot, Senior Water Resources Management Specialist at the World Bank, Ms. Irene Lucius, Regional Conservation Director Central and Eastern Europe at the World Wildlife Fund, and Dr. Günter Langergraber, Head of Department, University of Natural Resources and Applied Life Sciences, Vienna (BOKU).

Green and Grey, a new generation of infrastructure to tackle the challenges of water security and climate resilience

Mr. Klaas de Groot walked the audience through the "why", "what" and "how" of the World Bank's engagement in the implementation of nature-based solutions and green infrastructure to create a new generation of infrastructure capable of tackling the challenges of water security and climate resilience.

For the Bank, this topic is quite hot: Only recently, various World Bank documents on the use of nature-based solutions and their benefits have been published, among them the flagship report "The Economic Case for Nature" stating that over half of the world's GDP is generated by industries that depend on ecosystems services. The report also shows that a collapse of these ecosystem services will lose the global economy an estimated 2,7 Trillion USD by 2030. The World Bank has also published the report "An Epic Response", providing a framework for innovative governance in flood and drought risk management and also covering the specific needs for implementation of natural based solutions. Already in 2019, the Bank's report on "Integrating Green and Grey: Creating Next Generation Infrastructure" indicated that as a result of climate change, economic and demographic development, by 2050 nearly 20 percent of the world's population will be at risk of floods and the majority will live in water-scarce areas. Traditional grey infrastructure alone may no longer provide the necessary solutions, and the potential of natural systems and green interventions to protect, sustainably manage, and restore natural or modified ecosystems comes into focus.

Green Infrastructure strategically preserves, enhances or restores elements of a natural system such as forest, agricultural land, flood plains or mangroves to produce more resilient and lower-cost services. Mr. de Groot remarks that while historically, the World Bank's focus was on either infrastructure building or environmental projects, there is now a growing awareness that putting nature to work through natural based solutions will not only enhance infrastructure services but generate significant social and environmental benefits as well. Such projects often lower costs, promote sustainable development and offer opportunities to improve community livelihoods, aligning perfectly with the World Bank's core mandates, and complementing the Bank's twin goals to reduce poverty and increase shared prosperity, offering an important key to achieve a water secure world for all.

As examples for the potential of green infrastructure, Mr. de Groot mentions that restoring mangroves is five times more efficient than built infrastructure, and that, while the cement industry contributes 8% to the world's carbon emissions, making traditional infrastructure construction a highly carbon-intensive process, nature based solutions have the potential to contribute to carbon sinks. In fact, by capturing and storing carbon, forests and other ecosystems can deliver up to one third of the emission reductions needed by 2030.

Practical experience from the many projects that are supported by the World Bank teaches that the main challenge is to find the most efficient balance between nature based green and conventional engineered gray infrastructure, based on thorough knowledge of the potential of interventions and what is possible given the local circumstances. In urban flood management, for example, there are ample opportunities to combine storm drains and pump systems with storm water retention in parks and on green roofs to reduce peak flows and flooding risks.

The feasibility of nature-based solutions depends on a complex mix of a number technical, financial, legal, institutional and social factors. While on the technical side, green infrastructure requires the same careful evaluation and planning as built infrastructure, financing can often be the biggest stumbling block in getting a project off the ground, although nature-based solutions produce environmental and social co-benefits that significantly enhance their overall economic viability.

These multiple benefits are best exploited in cross-collaboration between a multitude of governmental and non-governmental institutions. Social dimensions are often more success-critical in nature-based solutions than in built infrastructure. They rely on community buy-in, especially when changes in land use are needed to increase ecosystem services, but when properly planned, such interventions will, more often than not, increase community benefits.

Tackling these complexities pays, says Mr. de Groot. Experience shows that green approaches provide cost-effective solutions, which is especially attractive in budget constrained post-Covid environments. Nature-based solutions have proven to lower and avoid cost while generating additional climate, economic and social benefits, some of which can be monetized to generate additional cash flows through, e.g. carbon credits, water quality credits and even biodiversity credits. Nature based solutions also provide access to green and sustainably linked finance and generate opportunities to capture an increased lending volume.

Indeed, an increasing number of financial instruments supports the implementation of green interventions, and the number of infrastructure projects with nature-based solutions components is on a steady rise. Within the World Bank, a number of programs on environment, urban development, water security, and on climate change and adaptation has been initiated, with financing by various donors. A portfolio review for the fiscal years 2012 to 2020 shows that in disaster risk management alone, the Bank is engaged in 73 large lending projects that feature nature-based solutions valued at 4.6 billion USD.

Mr. de Groot closed his presentation encouraging the audience to access the many reports and technical notes on this topic through the website of the World Bank, including the Flagship Reports on integrating green and grey and the recently published report on Governance for Flood Risk Management.

Harnessing nature for sustainable water resources management

Next, Irene Lucius, Regional Conservation Director Eastern Europe of the World Wildlife Fund shed light on the practical side of green infrastructure projects, presenting examples from pilot projects that demonstrate the multiple benefits gained from ecosystem restoration.

The Liberty Island Restoration Project in Hungary focused on restoring an almost dried up river sidearm behind a rock-filled dam. The dried-up area drew invasive species, and sedimentation threatened water supplies from nearby drinking water wells. Ms. Lucius calls it fortunate that the mayor in this community addressed the WWF for help in a restoration project that was implemented between 2009 and 2013 with funding from the EU and other partners. The restoration succeeded in stopping sedimentation, securing the drinking water wells, reviving the fish population, bringing invasive species under control and creating a now very popular recreation zone for the local population.

Ms. Lucius's next example is a river restoration currently in the planning stage in Reghin, Romania. Now a canal in the midst of the city, the planners are currently looking into different restoration options how to make the river available for economic and recreational purposes as well as for flood risk mitigation. The WWF has commissioned an economic impact assessment study by Ernst & Young to access the economic recovery funds that are currently being allocated. The study found true added value for the economy, an impressive amount of job opportunities and altogether an attractive return on investment for the city, showing that river restoration in cities is feasible and also produces a tangible impact on the urban standard of living.

The third example is a floodplain restoration project along the Danube in Romania. Here, the WWF has been engaging with the local population, discussing different restoration options, to find an option that would have serious local support. Dyke construction in the year 1900 Dykes left a formerly lively ecosystem all but dried up, with only a small lake left. The land is under intensive agricultural use that is particularly feasible through EU direct payment subsidies, which makes a full-scale restoration unlikely. A realistic scenario would focus on the restoration of the lake area with the added value of improving fish production there, an option that found huge interest of the local community and even support from some of the local farmers, giving the project a realistic chance of implementation within the next decade.

Noting that engaging with the locals and giving them a choice of options to secure their buy-in is seriously hard work, Ms. Lucius turns to the obstacles that nature-based solutions often meet.

She names the trust issue here, when there is insufficient evidence from pilot projects to prove that these solutions really produce the expected benefits. Another issue is short-term thinking, because nature-based solutions take time to prepare, designing each project individually based on a painstaking investigation of the environmental conditions. Pay-off periods can also be longer than with conventional solutions, and the complexity of the necessary multi-sectoral negotiations can be a serious stumbling block. Land rights and agricultural interests add to the complications.

When it comes to funding, the largest stumbling block is often the funding of the complicated feasibility studies in the project preparation phase.

Concluding her presentation, Ms. Lucius remarks that nature-based solutions find themselves in an uphill fight with off-the-shelf grey infrastructure solutions that enjoy higher trust. Yet, they usually beat conventional approaches, provided that their multiple benefits are taken into account and that their costs can be written off over an appropriate amount of time.

Natural solutions for rural wastewater treatment

Next to take the stage was Günter Langergraber, Head of Department, University of Natural Resources and Applied Life Sciences, Vienna (BOKU). He presented a practical use case of green infrastructures, i.e. natural solutions for rural wastewater treatment. When it comes to wastewater treatment, rural areas have characteristic challenges. The smaller the settlement and the number of connected households, the higher the fluctuations in water amounts and wastewater concentrations, putting the infrastructure under changing stresses. These infrastructure also suffer from a lack of trained operators. For all these reasons, small wastewater treatment plants need to be simple in design, construction and operation, and robust enough to deal with high fluctuations.

Options for wastewater treatment in rural areas are limited. The most costly method is collecting the waste and treating it off-site at the nearest treatment plant.

The most outdated approach is onsite collection in black septic tanks without any secondary treatment, nowadays more often than not complemented by a biological secondary treatment. Prevalence of these options depends on local conditions and sanitary regulations.

A green option is using the soil as recipient for treated or partially treated wastewater, and an even greener option is to stop looking at wastewater as waste and to view it as a resource. Solutions that recover resources like treated nutrients, organic matter or heat are usually based on separate collection of black water and grey water streams.

Fully biological solutions are either intensive treatment systems where the biomass and microbes are carrier mediums like filters, or solutions where biomass is suspended in activated sludge systems or SBR plants. Also available are natural treatment systems that require larger footprints, for example treatment wetlands or waste stabilization ponds.

In rural wastewater treatment wetlands, water flows either horizontally through a filter bed planted with macrophytes, or vertically. The oxygen supply in water-saturated horizontal is limited, therefore degradation processes are mainly anaerobic, and organic matter can be easily removed. In vertical flow systems water is intermittently loaded into the system and percolating through the filter, carrying enough oxygen to feed aerobic degradation processes.

System choice depends largely on legal requirements for effluent qualities, but all types of wetland treatment systems depend on an effective primary treatment to prevent clogging filters.

Typically, the footprint of a wetland system is 5m^2 per connected person, and in Austria, such treatment plants typically serve less than 50 connected people, with 95% of the population connected to systems larger than that.

A case study based on monitoring data from 2400 small treatment plants in Upper Austria which shows that while all types of systems meet the legal requirements, given proper operations, maintenance and monitoring, but systems that integrate a wetland stage perform better, over a longer period of time.

Mr. Langergraber concludes that natural solutions are suitable for rural areas, all the more because rural communities need simple, robust technologies that they can operate without specialist knowledge. Contradicting a widespread prejudice, the data show that wetland systems perform well, achieving at least the same results as conventional solutions while being more robust and easier to operate.

Engaging the audience

Following these three presentations, a very lively Q&A ensued. Asked about practical experience with the implementation and adaptation of nature-based solutions, Mr. Klaas de Groot reports an increasing acceptance of these types of interventions at a political level. Referring to his experiences from projects all over Latin America, he agrees with the list of stumbling blocks that Ms. Irene Lucius had mentioned, adding that “It’s never going smooth. But then again, which project is?” In this context he stresses that nature-based solutions are not a panacea and that success is a question of finding a proper balance with conventional solutions and also depends on timing. Adding green infrastructure to already finished projects

is often less attractive than integrating nature-based solutions upstream from a treatment plant during the planning stage. Still, Mr. de Groot recommends examining every individual situation through NBS glasses to see what type of balance would be best for that project.

Regarding the influence of the EU flood directive on project-related discussions with authorities and stakeholders, Ms. Irene Lucius calls all relevant EU Directives helpful to various degrees with the Water Framework Directive usually the WWF's main argument, and the Floods Directive a strong runner-up when it comes to advocating for a strong nature-based solution element in a project. The Habitats Directive is, in her experience, a comparatively weak argument for restoration, but on a general level the WWF also argues with alignment or enforcement of the Habitats Directive.

Asked if there are government-supported subsidized NBS development schemes and how to promote green solutions against an industry that supports a conventional approach, Mr. Langergraber reports that in Austria, subsidies for small treatment plants are available, but they are technology-independent. Not helping the case of nature-based solutions is the fact that nowadays, conventional plants come as technology packages, and often cheaper than wetland solutions. In this context, Mr. Langergraber recommends marketing by showcase, mentioning a treatment plant in Slovenia that runs a publicly accessible demonstration center for nature-based solutions.

In her final statement, Ms. Irene Lucius reflected on the future of nature-based solutions and their broad acceptance, differentiating between the water management community, where she sees a growing openness for green projects, and the wider society. She names as a main stumbling block the hesitation to engage with an agricultural sector that is producing economic revenues in countries that are struggling for growth and where challenging revenue generating economic activities is difficult to say the least.

Cooperation as key to sustainable water services

Date: Wednesday, 20 October 2021
Time: 14:15 – 15:30
Chairs: Mr. Kelmend Zajazi, NALAS and Ms. Patricia Lopez, World Bank

Context and objective

Efficient and effective water service delivery requires cooperation among a variety of actors, within the utility itself, the utility with the owners of the assets (usually a municipality), the utility and local government with the National Government and Regulator, and with river basin managers. In addition, cooperation and sharing across national borders has proven both beneficial and important in creating a family of water professionals dedicated to good water service delivery and able to respond to the challenges that affect the sector. This session explored positive examples of cooperation at differing levels, and in differing circumstances, and provided good lessons and inspiration for additional cooperation. Panelists from three model initiatives of cooperation were highlighted and the session explored how these examples can be expanded and replicated.

Session structure (find the recording here)

Time		Content	Speaker
14:15	5’	**Introduction**	**Mr. Kelmend Zajazi**, Executive Director, NALAS, North Macedonia and **Ms. Patricia Lopez**, Senior Infrastructure Finance Specialist, World Bank, Spain
14:20	10’	**Lightning Talk: Is cooperation the key to sustainable water services?**	**Mr. Daniel Bruderer**, Deputy Head of Infrastructure Financing, State Secretariat for Economic Affairs, Switzerland
14:30	10’	**Lightning Talk. Example Albania**	**Ms. Elisabeta Poci**, Executive Director, SHUKALB, Albania and **Ms. Lindita Sotiri**, Director of Development Programs on Water Supply and Sanitation, Ministry of Infrastructure and Energy, Albania
14:40	10’	**Lightning Talk. Example Montenegro**	**Mr. Dusan Raicevic**, Mayor of Bar and NALAS Vice President, Montenegro and **Mr. Mladen Duricic**, Director, Bar Water Company, Montenegro
14:50	40’	**Plenary discussion**	**Mr. Kelmend Zajazi**, Executive Director, NALAS, North Macedonia and **Ms. Patricia Lopez**, Senior Infrastructure Finance Specialist, World Bank, Spain
15:30		**End of session**	

Session summary

In a globalized world faced with global challenges, nobody can go at it alone, least of all the water sector with its staggeringly complex network of stakeholders and interests. We are all aware that we need to cooperate. But who should cooperate with whom, and to what end? This session explored examples of cooperation at differing levels, and in differing circumstances, providing valuable lessons and inspiration.

Session chairs Patricia Lopez, Senior Infrastructure Finance Specialist at the World Bank, and Kelmend Zajazi, Executive Director of NALAS presented panelists from three model initiatives of cooperation.

The network of cooperation

First, panelist Daniel Bruderer, Deputy Head of SECO Swiss Infrastructure Financing presented the SECO philosophy of holistic, systemic project support in urban development and infrastructure services. Taking a long, hard look at the complex mesh of stakeholders in the water sector, he asks, “who should cooperate, and with whom?”

The answer is a long list, beginning with cooperation between development partners, the line ministry and associations to pool resources and improve the system. Cooperation amongst municipalities and their public utilities drive regional infrastructure improvement, especially in wastewater treatment. Cooperation across national borders share best practices and coordinate regional projects. Mr. Bruderer concludes that, while cooperation beyond administrative borders depends on the political will and support by authorities, it is, without any doubts, key for creating sustainable water services.

The Albanian rollercoaster ride

Zooming in on a specific cooperation at the national level, Elisabeta Poci, Executive Director of SHUKALB, and Lindita Sotiri, Director of Development Programs on Water Supply and Sanitation in the Albanian Ministry of Infrastructure and Energy take the stage, sharing the success story of SHUKALB.

Founded 20 years ago, the Water Supply and Sewerage Association of Albania had to build up its working relation with the line ministry from scratch. Ms. Poci remembers: “In the beginning we were essentially a nobody. But staying true to our mission, starting small, but always delivering, we managed to gain credibility and grow into the role of partners of the ministry.” During the last five years, SHUKALB succeeded in winning ministerial support for two important projects, a national training and verification program, and an integrated asset management program in the frame of D-LeaP, the Danube Learning Partnership.

Speaking from the perspective of the ministry, Lindita Sotiri remembers this process as a bit of a rollercoaster ride, punctuated by altogether four changes at the head of the ministry and characterized by an ongoing competition against other investment-hungry sectors like energy and transport. “It was a bit challenging to stay in the focus of the minister”, she says.

“What you need to keep this kind of cooperation going is flexibility, ownership and leadership. You need a good, but short story to raise awareness and get everybody on board, and at the same time, you have to lead and make decisions.”

In the end, both agree, the relationship between institutions boiled down to personal relationships: “Institutions are made of people”, says Lindita Sotiri. “Everybody in the sector should be aware of the value of interpersonal skills. We should get training in telling a story and making people understand what they have to gain from a project."

The Montenegrin example

Contributing the local point of view, Dusan Raicevic, Mayor of Bar in Montenegro and Vice President of NALAS reported on the ongoing improvement of water supply and sanitation along the Adriatic coast, a multi-stage project that involved the Government of Montenegro, the Municipality of Bar, neighboring communities and the KfW Development Bank. The project is now involving into a regional water supply company, connecting Bar and the neighboring municipality of Kruce. Mr. Raicevic asks: “Was cooperation the key to success? Yes. Absolutely.”

Roundtable: Second year of COVID-19 crisis - Impacts and mitigation measures in the WSS sector

Date: Wednesday, 20 October 2021
Time: 14:15 – 15:30
Chair: Mr. Stjepan Gabric, World Bank

Context and objective

The Covid-19 pandemic has impacted the water sector in the Danube region, causing financial, technical and operational challenges, and imposed requirements for short-term adaptation to the new circumstances and continuing to ensure the safe delivery of water-related services. In the second year of the Covid pandemic, the water service sector has mostly learned its lessons and adapted to the new normal. However, this crisis has further exposed the already existing weaknesses of the water services sector in many countries but has also increased awareness for the need of improving resilience via proper crisis management arrangements and preparatory planning, but also through maintaining an efficiently operated and well-funded water service provision sector. The objective of the session was to present and discuss the current understanding of the overall impact of the Covid-19 crisis on the WSS sector in countries of the Danube region, while aiming to highlight the importance of including water-related investments in government recovery packages and the contributions they make to broader water security and resilience.

Session structure (find the recording here)

Time		Content	Speaker
14:15	5’	**Introduction**	**Mr. Stjepan Gabric**, Senior Water Supply and Sanitation Specialist, World Bank
14:20	20’	Covid-19 crisis impact on WSS sector in Danube River Basin- summer 2021 findings	**Mr. Ivailo Kastchiev,** external expert for water service provision and regulation (Bulgaria)
14:40	10’	Impact of Covid-19 on LGUs and PUCs in the Western Balkan region	**Mr. Hari Shutoski**, German Society for International Cooperation GmbH (GIZ)
14:50	50’	**Roundtable discussion**	Moderated by **Mr. Stjepan Gabric**, World Bank, Croatia Speakers: - **Dr. Jo Burgess,** Isle Utilities, South Africa - **Ms. Midoro Makino**, World Bank - **Mr. Hari Shutski,** GIZ - **Mr. Grgo Peronja,** Odvodnja-Zadar - **Ms. Branka Viduka**, Odvodnja-Zadar - **Mr. Goran Gavrilovic,** JKP Vodovod i Kanalizacija Kragujevac
15:30		**End of session**	

Session summary

The Covid-19 pandemic has impacted the water sector everywhere in the Danube region, causing financial, technical and operational challenges, and requiring short-term adaptation to ensure the continuous safe delivery of water-related services. The crisis has exposed existing weaknesses of the water services sector in many countries but has also increased awareness for the necessity to improve resilience, both by proper crisis management arrangements and preparatory planning and through maintaining an efficiently operated and well-funded water service sector.

Mr. Stjepan Gabric of the World Bank set the objective for the session, to review and discuss the overall impact of the Covid-19 crisis on the WSS sector in countries of the Danube region, aiming to highlight the importance of including water-related investments in government recovery packages and their contribution to broader water security and resilience efforts.

A survey of the sector – the impact of Covid on WSS

Mr. Ivailo Kastchiev, external expert for water service provision and regulation, then took the stage with the findings of a survey conducted on Covid-19 crisis impact on WSS sector in Danube River Basin in summer 2021. Mr. Kastchiev started his presentation by noting that there was very quick transition from normal to all-out emergency, and that the crisis affected different industries in different ways. Many industries felt negative impacts, and the water and sanitation sector was one of them. He further mentioned expectations of increased economic activities for the current year after minus 6.2 GDP in European Union for the past year. However, inflation has been rising and problems with the energy sector in Europe leading to price increases and low supplies of natural gas and electricity that have placed huge additional burdens on many sectors.

Mr. Kastchiev then outlined the major challenges facing water supply and sanitation in the region including huge non-revenue water and low water supply and sewerage services coverage in many rural areas. The survey explored economic regulators and water sector organizations in less developed countries of the Danube region, including Serbia, North Macedonia, Ukraine, Bulgaria, Albania, Moldova and Montenegro. The objective of the survey was to understand the overall effect of the Covid-19 crisis in 2020, compared to 2019, and to understand the cumulative effect of the various types of support measures in the countries surveyed.

The survey found water supply services (WSS) operators forced to rearrange the organization and provision of services and to introduce remote communication channels in response to lockdown measures. However, the crisis did not prompt major changes in activities, local organization, standards, and supply chain management in WSS, except in the period between March and May 2020, when extreme lockdown measures were in place. During that period, the supply of materials was affected, but the impact on operations was only short-term. The survey authors also note that during the initial phase of the Covid-19 vaccine rollout, WSS company staff was not given priority in vaccination programs. Still, the vaccination rate among employees in the sector is remarkably high.

The survey further states that although the WSS had to purchase additional protective equipment and disinfectants, the crisis did not significantly affect the regular operation costs of WSS operators. On the influence of the covid-19 crises on water consumption, the survey observed that there was an insignificant increase of on average 4% in domestic water consumption in the surveyed countries. However, there was a significant reduction in non-domestic water consumption ranging between 18 to 40% and even 50% in some countries. This reduction in consumption corresponded to a reduction in payment for water supply services.

It emerged from the survey that the Covid-19 emergency led to investment reductions, particularly for water supply. However, the crisis did not lead to even temporary cancellation of any standards and requirements, although some deadlines for certain tasks were postponed. Some regulators extended deadlines for regulatory report submissions. Furthermore, it emerged that support measures introduced in the surveyed countries were directed to reduce debt payments. It is interesting that the most commonly applied measure to reduce payments was a reduction of principal payments to commercial banks and public owners as well as to local tax authorities, although such measures were applied in less than 15% of all the respondents.

Furthermore, since many countries did not consider the water sector as a priority, targeted support programs were generally not applied for the sector in 2020. The survey observed that there were significant differences between tariff setting processes, business investment planning, performance monitoring and

benchmarking, and a lack of relationship between the tariffs and the quality of service. Therefore, the authors conclude that an introduction of common European level requirements in the countries of the Danube region could lead to a unified organization of the sector, levelling playground for service providers and other stakeholders. This would lead to more solid planning, coordination and public communication in the sector.

In many countries, the water sector is quite fragmented, with some of operators serving less than 5000 customers. Such small-scale businesses cannot introduce sophisticated management models and international best practices. They rely heavily on external support and financing which may not be reliable in crisis conditions. Hence, the survey considers the COVID-19 crisis an opportunity to consider consolidation on a national level to establish, solid, financially sustainable and resilient bigger utilities.

The authors also state that the water sector is very capital-intensive, that service provision and quality rely on the condition of the assets, and that therefore, proper asset management is critical. Water supply and sanitation assets have a lifetime of 100 years and more, and wrong investment planning and maintenance decisions and practices will have negative impacts that last decades. ISO 55,000 mandates the implementation of standards for life-cycle asset management in the countries of the Danube region. Furthermore, proper, detailed financial management, accounting and reporting on costs and assets is essential and would help WSS operators to quantify the impact of crises on their operational costs. The survey further recommends introducing digital solutions, especially in customer services, remote metering, SCADA and telemetric systems and the application of GIS systems for effective geo management as important steps towards improved resilience in times of crisis.

Performance monitoring and benchmarking is not only helpful for asset owners: The survey states that voluntary sector benchmarking, based on homogenous, reliable data should be encouraged everywhere in the Danube region, because it motivates utilities to share best practices and innovative ideas. It also mentions that at the onset of the COVID crisis, many countries in the region lacked crisis management plans. Furthermore, most operators lacked effective organizational structures, overall human resource strategies, job descriptions and protocols to assess employee performance. To improve resilience in the water supply sector in the Danube region, the survey recommends stronger capacity building and coordination to achieve more expertise and better service quality. This is essential for asset management, financial management, customer support and human resources management. In his final remarks, Mr. Kastchiev reiterated that the water sector was not given priority during the Covid-19 crisis, which calls for significant efforts to change the attitudes of politicians and customers while at the same time, the water sector needs to revise and modernize organization and performance.

Water supply services sector response to Covid-19 in the Western Balkans

In a second presentation, Mr. Hari Shutoski of the GIZ provided a summary of a GIZ survey carried out on the sector's crisis response. The GIZ open regional funds for modernization of municipal services in southeast Europe obtained additional funds from the German federal ministry BMZ to implement several rapid covid response measures to support municipalities and water utilities in the Western Balkans. Water and sanitation services were in the focus of this response, together with regional capacity development networks in Southeast Europe, public utility companies associations, association of municipalities, and their regional networks.

The survey presented lessons learnt and good practices of WSS delivery during the COVID-19 crisis. The survey observed no major interruptions in the quality of services. However, a notable lack of crisis management strategies and standard operating procedures was present in the sector. The survey observed that although central governments lent support to WSS operators, it was often too little and too late to mitigate the crisis impact. Water utilities requested financial assistance in form of tax exemptions and reduction of social security contributions. It also emerged that almost 80% of the surveyed utilities were hit by revenue losses in the range between 5-20% during the pandemic. Most utilities reported no significant cost increases except costs related to cleaning agents and disinfection.

A chance to leapfrog to the future

After these two insightful presentations, Mr. Stjepan Gabric handed the stage to a roundtable discussion.

Mr. Grgo Peronja, General Manager of Odvodnja-Zadar, a Croatian wastewater service provider in a large coastal community that significantly depends on tourism for its revenue, reported that Covid 19 affected the coastal regions of Croatia disproportionately, hitting tourism especially hard. His wastewater service,

proud of meeting European Union treatment standards, was hit by a revenue reduction of almost 30% during the summer season, delaying most planned major investments.

Dr. Jo Burgess, of Isle Utilities, South Africa, observed that during the first crisis year, most water supply service providers postponed activities like asset maintenance. However, there is light at the end of the tunnel. In a survey carried out in 92 countries, nearly 20% of the respondents had postponed some of their ongoing or planned maintenance during the early phase of the pandemic, but now they're back on track and 83% of them report that there's no significant delay any more in maintenance and asset management. Situational adaptations brought changed monitoring regimes, changed methodologies in asset condition and performance monitoring and a huge leap towards digital technologies and remote monitoring systems. Dr. Burgess also observed an uptick in the utilization of rapid test kits for microbiological safety. In terms of capital projects among water utilities, about 30% saw no delay at all during the pandemic. A few percent of the capital projects were delayed less than three months, a few by about six months, and another 30% were knocked back three to six months and more. The longer-term impact is that 20% of the capital projects are still frozen two years into the crisis. Such delays also impact non-revenue water management that has increased between two and 8% as reported in some utilities. Consequently, where capital expenditure would be necessary to reverse, e.g. non-revenue water losses, it still isn't happening. Therefore, the non-revenue water continues to increase, and the impact will be felt for many years to come.

Ms. Midori Makino, a Lead Water Supply and Sanitation Specialist for the Water Global Practice, covering the Latin America and the Caribbean Region at the World Bank, noted that the deferred capital expenditure presents a risk of delay in the achievement of the SDG goals, in addition to socially disadvantaged population groups left behind. On the positive side, Ms. Makino highlighted the importance of preparation of the sector for the future, finding it encouraging that many utilities in most countries are exploring options to deal with such crises. She closed the roundtable on an optimistic note, urging that the utilities take advantage of the current situation to make a turnaround, to leapfrog and to build resilient utilities of the future.

2021 Danube Water Conference: Closing Session

Date: Wednesday, 20 October 2021
Time: 16:00 – 17:00
Chair: Mr. Walter Kling, IAWD President

Context and objective

This session summarized the key take home messages and reflected the lessons learned in a high-profile panel.

Session structure (find the recording here)

Time		Content	Speaker
16:00	5'	**Introduction**	**Mr. Walter Kling**, IAWD President, Austria
16:05	20'	**Can we build a resilient and water secure Danube region?**	**Mr. Winston Yu**, Practice Manager, Water Practice, Europe and Central Asia, World Bank, Washington DC
16:25	25'	**Panel discussion on lessons learned and how to proceed**	Moderated by **Mr. Winston Yu**, Practice Manager, Water Practice, Europe and Central Asia, World Bank, Washington DC **Panelists:** - **Ms. Vesna Muslic**, President, AQUASAN Network, Bosnia and Herzegovina - **Mr. Ivan Zavadsky,** Executive Secretary, International Commission for the Protection of the Danube River (ICPDR), Austria
16:50	10'	**Closing of the 2021 Danube Water Conference**	**Mr. Raimund** Mair, Senior Water Resource Management Specialist, DWP Program Leader, World Bank, Austria and **Mr. Philip Weller**, Head of Technical Secretariat, IAWD, Austria
17:00		**End of session**	

Session summary

The closing session of the 2021 Danube Water Conference brought a comprehensive sum-up, words of warning and encouragement – and a very emotional party-crashing video.

Toasting with a glass of drinking water

Toasting the audience again with a glass of drinking water, IAWD President Walter Kling expressed gratitude and happiness with an extremely effective and inspiring virtual conference that managed to bring excellent contributions from everywhere on the planet. Convinced that virtual conferencing will continue to play an important role in a post-Covid future he is still looking forward to the return of face-to-face meetings.

The Danube region as a role model

That said, he handed the stage to World Bank's Winston Yu, who summed up the content of three intense days, noting that more than 250 participants bear testament to the importance of the resilience topic.

Mr. Yu's key takeaway is that at the eve of the COP 26 conference, we realize that the climate crisis is, above all, a water crisis. Water risks feature prominently in global risk reports for governments, business and the whole of humanity. At the same time, a historic opportunity is at hand. Green programs spring up not only in Europe, but around the world, and water has a chance to become a fundamental building block for the carbon-free economy of the future.

Turning to the resilience theme and the floods and droughts that increasingly affect the Danube region, Mr. Yu mentions the World Bank Water Security Initiative and the necessity to give science and research more traction by introducing widely understood storylines.

The Danube region, the most international river basin in the world, is actually a role model for the World Bank's work on transboundary issues: "International cooperation will be a key to build resilience in our region", says Mr. Yu.

Innovation and technology were important topics during the whole conference. Technologically, the formerly quite conservative sector is on the move, with nature-based solutions, satellite imaging, AI applications and a further long list of new water technology promising leaps in efficiency and operational security, provided that governments and regulators create a friendly environment for implementing innovative technology and the necessary human capacity is available. In this context, Mr. Yu highlights the encouraging experiences with the D-LeaP programs.

He also mentions communication as an all-important and often underestimated tool to create synergies. Reducing complexity to make the sector's issues understandable for the public is a critical task.

Lastly, the Covid 19 crisis has brought financial, technical operational challenges, exposing existing weaknesses and teaching an important lesson about the need to improve resilience. The sector has mostly coped well, but the negative impact of the crisis will be felt for years. "All the more important is getting together, working together, learning from each other and building on each other's wisdom", says Winston Yu. "I feel that this crisis has brought a huge opportunity to change, and the Danube Waster Program, working in synergy with other partners, has the tools for change. Can we build back better? I think we can."

Fixing a running train

Next to take the stage was Vesna Muslic, President of the AQUASAN Network, an association that started out in 2010 as an informal network to strengthen cooperation amongst relevant stakeholders in the water sector of Bosnia and Herzegovina. Ms. Muslic refers to the frequently quoted definition of resilience as an "ability to be happy and successful after something bad has happened", warning that "this something bad hasn't happened yet – climate change is and keeps happening. We do not have the luxury to put the event behind us. Instead, we will have to fix the train while it is running."

In this context, Ms. Muslic reminds us that utilities and their problems need to be understood by governments: "I cannot stress enough the need to improve understanding. We need to put water on top of the agenda to create a sustainable business environment for utilities."

The intersectoral approach

Ivan Zavadsky of the International Commission for the Protection of the Danube River (ICPDR) wholeheartedly agrees, demanding further that decisionmakers need to understand the transboundary complexity of water. "Many think that the responsibility is on the sector side, but on the other hand there are so many players who influence decisions with huge, long-term impact on the availability of water."

Mr. Zavadsky reports that in the face of ever more frequent weather extremes, the ICPDR has had to widen its focus from cleaning up water to look at water availability as well, also mentioning that in wide parts of the region, wastewater treatment is still not up to date. He calls for intersectoral efforts to address the present and future challenges: "We have to work with other sectors like navigation, hydropower, agriculture and industry to achieve sustainable development", he says, calling for a holistic view of the Danube basin.

Much like Vesna Muslic, he sees the water sector challenged to communicate and increase awareness: "We need to teach voters what to demand from their governments, and make governments listen to their voters."

A party-crashing surprise

Before formally closing the event, Walter Kling and Raimund Mair announced a party-crashing surprise: During the conference preparations dozens of colleagues, partners and friends had teamed up, producing a video full of emotional messages that celebrates Danube Water Program Coordinator and Head of the IAWD Technical Secretariat Philip Weller who is about to retire.

Visibly challenged to keep up his poker face, Mr. Weller thanked the well-wishers, the 80 speakers and panelists, the 250 participants and a long line of supporters, replacing the obsolete “I wish you a safe travel home” with a simple “Stay safe!”, thus closing an exciting and inspiring Danube Water Conference 2021.

V. SURVEY RESULTS

In total, one keynote, 30 presentations, 4 panels, 6 plenary and 5 roundtable discussions as well as one "Ask me Anything" took place across 16 sessions. This conference report comprehensively summarizes the content of each of the sessions.

Like previous years, the organizers requested feedback from the participants at the end of the conference via an online survey. In total, 18 evaluation forms were received and analyzed.

Sessions liked best by survey participants were "Smart utility management for resilient service provision" and "Do you speak Danubian?"

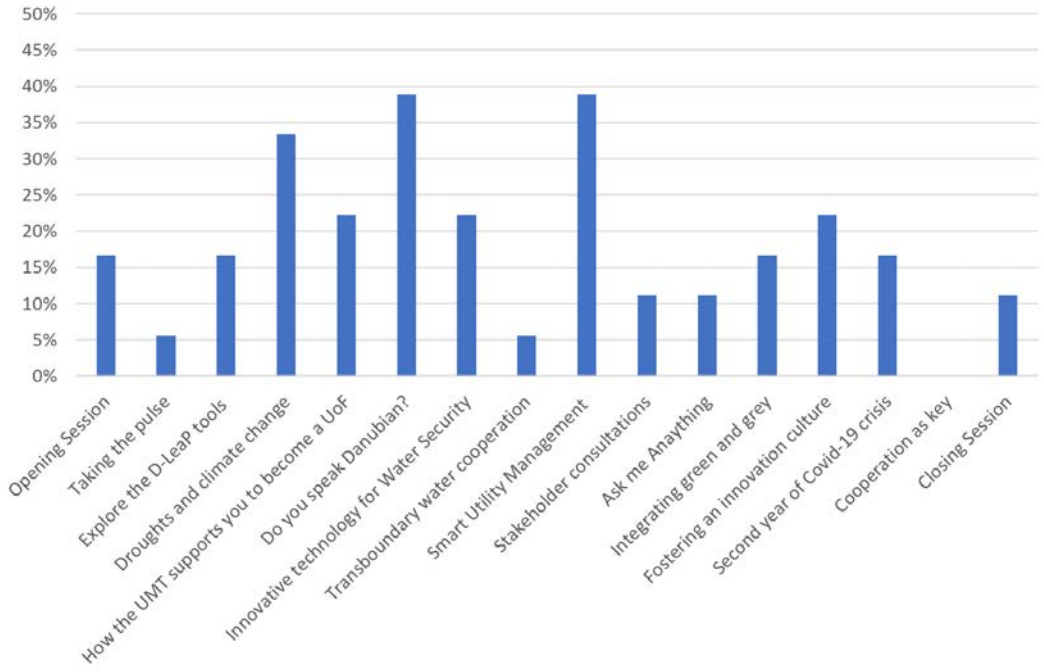


Figure 3: Favorite sessions at the 2021 DWC

Participants are still in favor of the traditional session format with three presentations and Q&A but are also open to join discussion-focused sessions with one to two short ignite talks followed by a panel discussion.

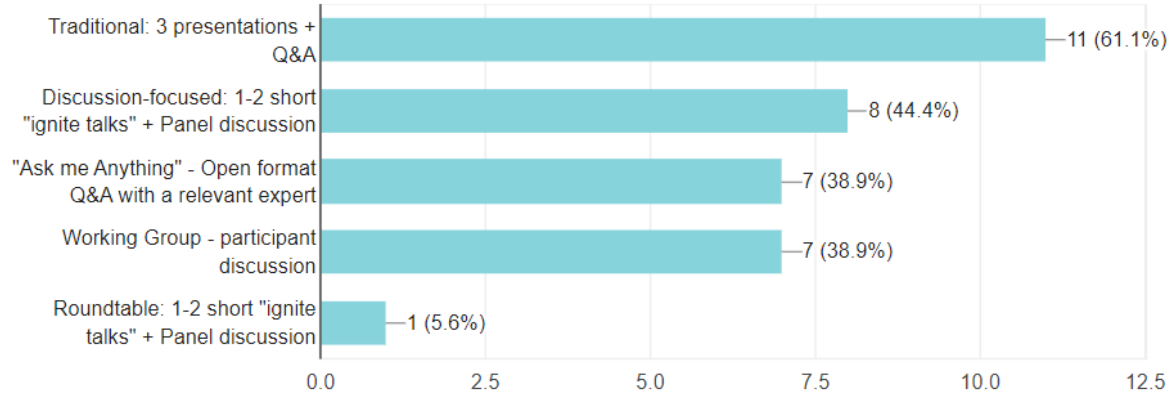


Figure 4: Favorite sessions format

Overall, almost 90% of the respondents thought the Conference Management Platform Swapcard was a good tool to be used. Features such as the various session formats, the networking opportunities as well as the photo both were appreciated the most.

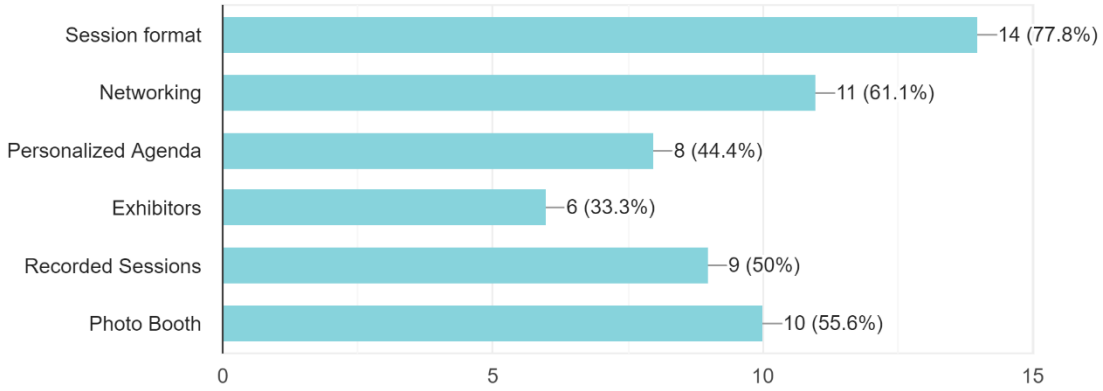


Figure 5: Favorite features of the Conference Management Platform Swapcard

Almost 80% of the respondents would appreciate a virtual component as an add-on feature to future physical events and 22% would value an online live stream.

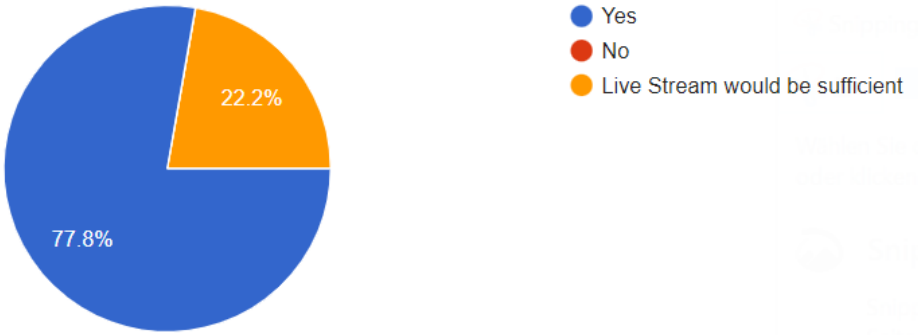


Figure 6: Virtual component as add-on to future physical events

The main cited benefit of the 2021 Danube Water Conference was networking and sharing of experiences across the Danube region, but also from around the world. Emphasis was also put on the access to novel practices and trends and new projects happening in other countries.

Regarding format, the majority of survey respondents stated that they liked having three sessions per day with the networking breaks in between.