



XVII

29 Nov - 3 Dec 2021 | Daegu, Republic of Korea

World Water Congress

International Water Resources Association (IWRA)



Newsletter

FRIDAY DECEMBER 3RD 2021

EXCO, DAEGU, REPUBLIC OF KOREA

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THE 17TH WORLD WATER CONGRESS CONCLUDES WITH THE DAEGU DECLARATION CALLING FOR IMPROVED COOPERATION FOR COHERENT RESPONSES AROUND WATER ISSUES

Especially in the post-pandemic context, the world has recognized water as a fundamental element of building resilience and long-term sustainable development. The right to water and sanitation is fundamental to the realization of all human rights.

Under the theme of the 17th Congress that tackled for the last five days the Foundations for Global Water Security and Resilience, in line with the 2030 Agenda, the 9th World Water Forum, and the 2023 UN Conference on Water, the Daegu Declaration has been adopted to underline these concerns.

The document calls for urgent need for dialogue and coordination across different disciplines and sectors to address complex water challenges. The importance of water for life and development must be reanalyzed in this regard, not only in connection with sanitation and hygiene, but with sustainable management of water resources and aquatic ecosystems.

Five themes are addressed at the Declaration as critical for achieving global water security and resilience:



- 1) Disseminate Nature Based Solutions, together with the mainstreaming of public policies dedicated to water resources management and biodiversity preservation.
- 2) Reinforce IWRM and river basin approaches, with good and shared governance, including for transboundary resources, as effective tools for peace and sustainable development.
- 3) Support solutions for productive and sustainable agriculture,

respectful of soil health and its interdependence with water needs.

- 4) Improve coordination between scientists and educators in an effort to empower future generations with the right knowledge and tools.
- 5) Institutionalize the engagement of youth and early career professionals, through developing programs that reflect a long-term vision and commitment to include them as partners in the process.

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FOREWORD

Thank you South Korea for hosting the 17th IWRA World Water Congress, and see you all in China in 2023!



*Foundations for Global Water Security and Resilience:
 Knowledge, Technology and Policy*

What an intense week and a challenging experience to conduct our World Water Congress amid a global pandemic! The last few months have been tumultuous, fraught with uncertainty. However, if something results from our 17th World Water Congress, it is that our efforts were worthy!

The flexibility from our partners to adapt to the circumstances has been overwhelming; the support from the host organisers, unprecedented, and the engagement of over 1000 attendees, speakers, and participants, is touching to all of us.

All of this represents the high level of commitment of the water community to not only gather and propose solutions, but to advance the water agenda towards the Agenda 2030.

Something that has become clear throughout the Congress, is the linkage between policy and science, and the contribution that the research community should have to that interface. We discussed this topic during many sessions conducted, and most of the papers presented had a policy angle or an implementation dimension. Besides that aspect, the need to engage parties from different nature around water issues, especially the academia, the private sector, and communities through innovative approaches, such as multi-stakeholder platforms, has been present throughout our 5-day conference. These three components have been at the core of IWRA since its foundation 50 years ago, and they will probably lead the debates in the near future.

Today IWRA feels very proud to announce that the next World Water Congress is to be held in Beijing, China in 2023. China has become a world reference in embracing sustainable development and in shifting from traditional patterns of consumption and although a lot of work is still needed, we feel that we are on a good track of advancing towards higher commitment from all types of stakeholders.

Thanks again to South Korea for hosting this remarkable World Water Congress and see you all in China in 2023!.

This is a product developed by the
 IWRA Executive Office
 Editor/content: Rut G. Sobrino,
 IWRA Director of Communications
 Copy editing: Aubrey Crosby
 Design: Nathalie Lyon-Caen

In addition to these five overarching themes, the Daegu Declaration proposes a call for action involving:

- Political leaders to leverage and to integrate water debates in the international policy agenda
- The scientific community to advance on the interlinkage between water security and ecological security so that Water should be jointly addressed at the same level of priority as biodiversity and climate change in the international and national levels.
- Youth that should take ownership of the intergenerational responsibility to tackle current challenges and to develop cooperation projects, cross-sectoral approaches, and to contribute beyond the conventional ways.
- The 9th World Water Forum in Dakar: to embrace the importance of systems thinking and breaking down disciplinary and institutional silos as it promotes future pathways and innovative responses that ensure the sustainability and resilience of the water sector.
- The UN 2023 Water Conference to accelerate the implementation of the SDGs around water security, something that requires strong cooperation between States, especially in the context of transboundary water management, through joint institutions and operational legal instruments.
- IWRA Board, to reflect and to revise vision and strategy to better support the momentum towards improved cooperation for coherent policies and strategies.

[> Read here the full Daegu Declaration <](#)

THE CONCEPT OF BLUE CITIES TO ENHANCE WATER SECURITY AND RESILIENCE



As stated by the OECD forecast in 2016, the contribution of the ocean economy is expected to reach USD3 trillion by 2030. Coastal and maritime tourism and port activities alone should contribute to over a third of this amount. At the same time, 570 low-lying coastal cities face a sea-level rise of 0.5m by 2050, putting 800 million people at risk. In addition to this concerning situation, around 80% of marine pollution comes from land-based sources such as untreated sewage, including plastics.

Under this spectrum, 'blue cities' are the ones that aim to combine economic growth, livelihood, innovation, and social wellbeing, and the High-Level Panel of the fourth session of the World Water Congress was dedicated to this theme.

The session was moderated by **Mr. Tom Soo**, IWRA membership committee chair and executive

director of IHAR, and had as speakers **Ms. Oriana Romano**, Head of Unit, at the Water Governance and Circular Economy, and **Ms. Juliette Lassman**, Policy Analyst, Water Governance and Circular Economy, both at OECD, **Mr. Eric Tardieu**, Secretary-General at the International Network of Basin Organizations **Mr. Gonzalo Delacámara**, Head, of the Water Economics Department, in the Madrid Institute of Advanced Study, **Mr. Francois Brikke**, Future Cities Team Leader at Mott MacDonald Indonesia, **Mr. Martin Shouler**, London Water Leader, **Ms. Fang Za**, Yangtze River Water Partnership, China, **Ms. Krista Milne**, Climate Change Director at the City of Melbourne, and **Khin Ni Hi Thein**, from the Myanmar Water Think Tank.

The first discussion addressed extreme water events and land-based (originated) water pollution as phenomena that put economies at risk. In fact, by 2030, it is estimated

that floods and other extreme events will increase by a factor of 4. By 2050, humanity will reach 9 billion people and 75% will live in cities. Governments are planning to spend billions of dollars on green recovery measures. But still, a portion of water in the cumulative measures is only 21%.

Cities have an important role to play and they can be the centre of solutions, with having the capacity and space for activities. But urban centers should be resilient, inclusive, and circular which includes a proper water governance system.

Addressing the multidimensional aspect of governance mechanisms is therefore required, but also advancing towards a concept of Innovation that is not just focused on technology but also institutional frameworks.

The need to enhance collaboration, partnerships, and cooperation was especially underlined at this first-panel discussion together with the potential of communications, leadership, and financial aspects, which are key for blue cities and water resilience in connection with energy, agriculture, and ecology, among other topics.

The panel discussion served to present a dialogue involving 10 cities from different backgrounds, regions, and characteristics but also approaches to development. For instance, some focus on economic prosperity by reducing pollution, some others care about resilience to achieve economic growth.

Under this view, policy reforms need to be at the core together with the involvement of both the private sector and the community.

DOMINIQUE BEROD, HEAD, EARTH SYSTEM MONITORING DIVISION AT THE WORLD METEOROLOGICAL ORGANISATION



“We have to learn how to establish a better dialogue among meteorologists, climatologists, hydrologist and oceanographers to utilise the integrated Earth System approach to assist countries”

Why monitoring becomes essential in water management resources?

Water monitoring allows to detect rapid changes of the water cycle and to anticipate appropriate responses to new, unexpected phenomena related to climate change and increased human activities. Observations enable a better understanding of the complex water system, improved models and forecasts, and ultimately better decisions: Without data, you are blind. Water monitoring has existed for a long time in many countries; the increased frequency of extreme hydrometeorological events demonstrate the urgent need to enhance observing systems at all space and time scales.

Has the pandemic pushed us to work in a different manner around water issues?

Definitely. The pandemic shows that we need more cooperation among players, and that we have move quicker towards digitalization. The pandemic confirmed that a holistic approach to interconnected challenges is much wanted, as no isolated solution can address all problems: we need collaboration and solidarity, particularly in water management. From the water monitoring point of view, there was a significant decrease of hydrological observations when the pandemic arose, due to the impossibility to visit stations in the field for a long period. Having automatic stations with appropriate electronic data transmission tools and robust data and information systems must hence be accelerated to avoid similar problems. WMO has a clear priority to support such modernization efforts.

In the interlinkages between meteorology, hydrology and climatology, what would be the leading debates in the coming years?

In my opinion, it will be on how to adapt our methods - from an isolated problem solving to an integrated approach. The debate until now was on the establishment of a global observing network, to be supported by a unified data policy and a new funding mechanism: In October 2021, the WMO Congress took three historical decisions for establishing these new mechanisms. It decided as well to adopt an action plan for operational hydrology and the creation of the Water and Climate coalition for accelerating the achievements of the Sustainable Development goal on water, with many partners. We have thus the general collaboration framework, the appropriate global policy and a plan to develop technical solutions. We now have to learn how to establish a better dialogue among meteorologists, climatologists, hydrologists and oceanographers, and how to make best use of the integrated Earth System approach to help countries to deliver high quality, effective and sustainable solutions. We need to learn from each other, which makes our work even more interesting!

INTERVIEW

JENNIFER SARA, GLOBAL DIRECTOR FOR THE WORLD BANK GROUP'S WATER GLOBAL PRACTICE

“The Covid-19 pandemic showed how interconnected all our systems are and that the water sector is central to the economic recovery from the pandemic”



You have worked on water issues for the last 30 years, how has the debate been leveraged in the recent decades?

Water is and always has been a linchpin of sustainable development and central to building resilience. Even before the pandemic, climate change, growing populations, pollution, and overconsumption were making water an increasingly scarce resource. But the pandemic has ushered in a new urgency for a joint and coordinated response. More than half of the world's cities already experience water shortages on a recurring basis. Also by 2030, it is predicted that there will be a 40% shortfall in water supplies.

But today, our work is more important than ever. Water is central to combatting COVID-19. Is central to resilient recovery. It flows through nearly every Sustainable Development Goal. Ensuring water security is an urgent development imperative. It drives economic growth, helps ecosystems flourish, supports climate adaptation, and maintains health. I truly believe that throughout all these years, and especially in tackling the health crisis we are facing today- international cooperation and partnerships that we have created to date, assume a new level of importance. The demands are truly staggering. No single stakeholder group

can solve the problem alone. We need to work closely between the public and private sectors, particularly helping the private sector get back on its feet to facilitate the resilient recovery. I truly believe in the Bank Group's comparative advantage- we'll work with clients and partners to develop innovative approaches that can speed progress in fighting the pandemic and transform crisis into opportunity, but we need to deliver holistically, supporting the ecosystem, across all water demands through sector institutions, and private sector engagement.

We need to continue working today and commit to partnering differently – making fundamental strides to accelerate progress to achieving the SDGs for our future and generations to come.

Among the things that we learned from this pandemic, probably the interlinkages between water, sanitation and agriculture, just to mention a few themes, are among the lessons learned. How will the pandemic influence the debates around water resources management?

First of all, I believe Covid19 pandemic showed how interconnected all our systems are and the water sector is central to the economic recovery from the pandemic—all industries rely on it in some way. Business as usual will not be adequate to address climate change—the greatest threat to humanity—and the water sector is central to these efforts. Water is central for efforts to adapt and mitigate the unprecedented impacts of climate change. 9 out of 10 climate events are water related

Secondly, we know that investing in water resources management and climate resilience pays off. Climate change has made the water cycle far less predictable – and water availability and quality less reliable – threatening communities, livelihoods, and sustainable development.

Finally, recent events also highlighted the need for better policies when it comes to water resources management, greater institutional clarity on how water is managed, which are essential for global water security.

- *Institutional tools such as legal and regulatory frameworks, and incentives, are needed to better allocate, regulate, and conserve water resources.*
- *Information systems are needed for resource monitoring, decision making under uncertainty, systems analyses, and hydro-meteorological forecasting and warning.*
- *And, investments are needed in innovative technologies for enhancing productivity, conserving and protecting resources, recycling stormwater and wastewater, and developing non-conventional water sources—in addition to seeking opportunities for enhanced water storage, including aquifer recharge and recovery.*

What do you think is needed to lead the discussions around water in the coming years?

- *We need exceptional and urgent collective global action to tackle the combined impact of cascading crises while adapting to post-pandemic realities. We need to build forward momentum on the wide range of development challenges facing the global community.*
- *Together, we have already done a lot. We have proven that we can work together and have strategic collaboration between public, private, and civil society actors for concrete impact on the ground:*
 - *In Azerbaijan we rehabilitated and reconstructed water and sanitation facilities across the country's rural districts. 98 percent of the population in the selected districts*

gained access to water for 24 hours a day, as compared to about 3 hours prior to the implementation of our project.

- In Karnataka, India, we delivered Asia's largest, community-drip irrigation scheme of 24,000 hectares. The Government of Karnataka, is increasing the innovative agri-water productivity and building stronger people-centric institutions for water use.

- In the Brazilian state of Espírito Santo, we helped introduce payments for environmental services to protect watersheds. This has reduced the need for water utilities to invest in expensive filtration systems.

- *But we need to do more. Our challenge is to make sure our efforts are replicated, scaled and accelerated. To do it effectively we need to focus on two main things:*

- First of all, we need to drive greater cross-sectoral collaboration for cohesive solutions to the water challenge. We need to further break down silos in tackling interconnected issues, for which we invite more partners to join hands for the Water Secure World for All.

- And secondly, we need to innovate at scale to support the achievement of SDGs across key priorities of agricultural reform, industrial growth, and urban development. We need to focus on the creation of the enabling environment, large-scale programmatic approaches, and delivering new financing instruments for impact and delivery.

So my message is simple: the time for action is now, through lasting strategic partnerships and bold and comprehensive programs. The World Bank is uniquely positioned to work with clients to improve water management, providing investment and technical support that builds resilience, reduces emissions, and lowers costs. And we promote partnerships between governments, the private sector, and civil society that help countries adapt to climate variability.

ASSESSING THE ROLE OF INTERNATIONAL WATER LAW



Water law and dam management has been particularly addressed by IWRA and therefore was part of the discussions within the World Water Congress in Daegu. The theme, intimately related to policy development, included the analysis of existing frameworks, tools, and case studies in South America and Africa with the aim of providing guidance to foster cooperation and better dam management. Additionally, a Project implemented by the International Union for the Conservation of Nature (IUCN) on dam management was showcased as a set of principles and guidelines that reflect more current values into dam development.

Six categories of tools have been identified for dam management, including the 1923 Geneva Convention, the UN Watercourses Convention (i.e., principles of international water law) and environmental law (sovereignty to exploit natural resources, duty not to cause harm, access to judicial and administrative remedies, the precautionary approach, duty to ensure prior notification, obligation to carry out environmental impact assessments, and others).

Seven multilateral environmental agreements are applicable to dams (Ramsar, World Heritage, Migratory Species, Law of the Sea, Biological diversity, Framework on Climate



Change, Espoo Convention on Environmental Impact Assessment). A series of instruments in international human rights also pertain to dam management, dating from 1966 to 1998 (e.g., Aarhus Convention, and resolution to involve Indigenous Communities). Tools related to international standards are also relevant, eg, OECD guidelines for private sector companies, among others.

A number of prerequisites for dam construction were mentioned including social and environmental risk assessments, transparency and the involvement of key stakeholders. IUCN joined forces with the Geneva Water Hub to build legal and institutional capacity for dam management. The World Bank's World Commission on Dams was created and two resolutions on dam governance have been adopted. Governments have supported continuous improvement for dam management.

The Senegal River Basin Organization that includes 4 countries was also part of the discussions. Nine countries are in the Niger River Basin (AGN). Institutional Conventions

from the 1970s and 1982 are relevant for current management. The Niger Basin's 1987 Convention sets out a series of objectives that have committees and initiatives to achieve these objectives.

In South America there is a binational example for dam management – the Itaipu Dam which is a hydroelectric dam on the Paraná River between Brazil and Paraguay.

Generating 2.8 billion MWh Itaipu is one of the largest energy producers in the world. The Parana River is shared by Brazil, Peru and Paraguay. Climate change and activities in the upper basin are causing unprecedented low flow and water scarcity that endangers energy supply. Special operations, called water windows, is a system whereby stakeholders are identified to say how much water they require, e.g. for energy, navigation, water supply, and the dam is then used to meet these needs. It was explained that it is a successful example of cooperation. Itaipu is undertaking a very large reforestation initiative within its catchment area as part of an objective to restore ecological conditions.

The discussion underlined that no country in South America has ratified the UN Convention governing dam management. However, the principles of the convention are effectively implemented as part of the local governance of dams, including at Itaipu.

The Senegal River Organization controls the river course, regulates rivers and energy grids, facilitates transport and navigation for industrial development, and organizes sharing property and benefits of dams. It was said at the end of the session that it was fitting that Senegal should be hosting the World Water Forum from 21-26 March 2022.

Speakers

Raya Stephan

Deputy Editor-in-Chief, Water International
 Moderator

Ambassador Guy Bonvin

Swiss Special Envoy for Water in Central Asia, Federal Department for Foreign Affairs

Key-note Speaker

Alejandro Iza

IUCN Germany

Oral presenter

Mara Tignino

Geneva Water Hub / University of Geneva

Oral presenter

Diego Jarra

IUCN Germany

Oral presenter

Christophe Brachet

Deputy General Manager, OIEau

Oral presenter

Maria Gwynn

Institute for Public International Law, University of Bonn

Oral presenter

M. Abdoulaye Sene

Executive Secretary and Co-Chair, Preparatory Committee for the IX World Water Forum

Presenter

INTERVIEW WITH YUANYUAN LI, IWRA VICE-PRESIDENT

“The future will bring cross-disciplinary, membership-focused platforms to facilitate and inspire dialogue, knowledge sharing, innovation and science-based solutions for the management of water resources”



This is a special Congress as you were recently elected as President of IWRA, also in a special year, when the Association is celebrating its 50th Anniversary, how do you see the present water debates at global level?

The 17th Congress has a proven record of a hybrid meeting under the current difficult situation of the COVID-19, it's a good example of overcoming the difficulties and promoting the exchanges among water stakeholders. During the past 50 years, IWRA has become a leading global platform and a united community of researchers, scientists, educators, policy-influencers, decision makers and water managers. It is dedicated to encourage IWRA members work in a collaborative way for water resources protection, utilization and development, management and to strive for positive outcomes through great endeavour. I'm very flattered and honoured to be elected as IWRA president, I truly believe with the support of IWRA members and partners, IWRA will have determined exploration with a pioneering spirit to blaze a great path to develop more

professional and technical water-related knowledge and integrated approaches for water issues. As we are living in a changing world, many challenges, such as climate change, changing diets, economic growth and demographic changes are all expected to amplify the already complex relationship among economic development, water demand increase and ecological protection pressure. In the future, I believe there is a need to develop a cross-disciplinary, membership-focused platform to facilitate and inspire dialogue, knowledge sharing, innovation and science-based solutions studies for the sustainable development and management of water resources.

How could you define the evolution of the water debates in the last years, especially the relation between water and climate change?

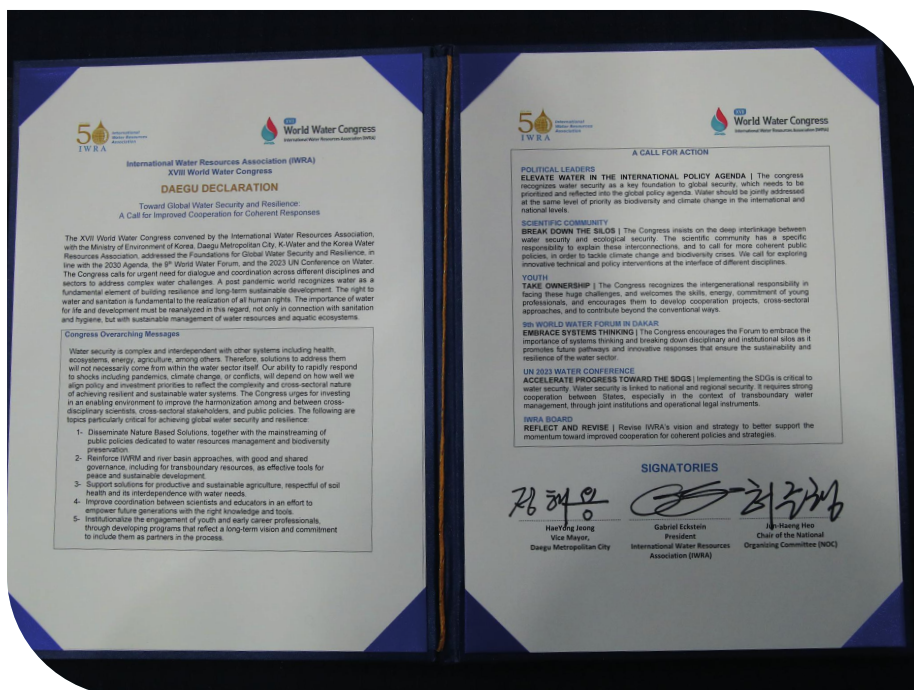
Water is critical for socio-economic development, food production, human health, and the eco-environment system. At present, climate change poses pressing, formidable and long-term challenges to us all. Changes in global climate are intertwined with socio-economic change, land cover and land use change, as well as population change, so how to ensure water security and ecosystem security is a common problem the world is facing. In September, Chinese President Xi Jinping pledged on behalf of our nation that "China will strive to achieve carbon peak by 2030 and carbon neutral by 2060." To achieve the goals of 2030 and 2060, as well as 2030 Sustainable Development Goals, we should work together to find a way to balance the water demand between human and nature. On one hand, we should strengthen our protection

capacity to ensure ecological security, such as increase the wetland areas, mitigate soil and water erosion, reduce water and land consumption intensity, pay more attention to biodiversity protection, etc. On the other hand, we should strengthen the construction of the water security infrastructure system, and be well-prepared to fight against water disasters and risks under climate change.

What can we expect in the years to come on the debates about water resource management?

Water is complex because it is intensively linked to almost everything in the world. It is a precondition for human existence and for the sustainability of the planet. Therefore, we are dedicated to seek nature-based solutions that can facilitate both economic development and protect the natural ecological system. However, many water challenges are all expected to amplify the already complex relationship between human and water. In the future, dealing with the existing challenges, we should firstly promote the data sharing, digitalization and intelligence of water management, therefore ensuring intensive, accurate, and efficient and reliant water management. Secondly, we need to formulate and improve water-related regulations, policies, and laws in order to properly regulate human behaviours on utilizing scarce water resources and protecting the ecosystem. Thirdly, we need to further strengthen our water infrastructure development and management considering both human and nature needs, to develop and manage the water infrastructure in a more eco friendly and resilient way. Last but not least, there is also a need for bottom-up public participation, it empowers people and it is a vital means to promote fair and efficient management of water resources and services. All the above actions are encouraged to be implemented based on nature so as to simultaneously providing human well-being and water ecological benefits, it's our inevitable choice.

THE WORLD WATER CONGRESS IN IMAGES



*Foundations for Global Water Security and Resilience:
 Knowledge, Technology and Policy*