



Since 2013, “water supply crisis” has been annually identified as one of the top three risks to business performance. Thus, the need to address risks such as flood damage and unreliable supply is obvious to businesses. There are many challenges that hinder businesses effective contribution to the water sector. Those challenges include understanding region specific adequate technologies, governance capacity, and infrastructure for sharing knowledge and information.

One solution may be water stewardship as a response strategy. Since most companies are not prepared to engage in catchment-based collective action on water, companies must enhance their understanding of water uses in the catchment where they operate in order to develop into a more sustainable water use. In India, adopting smart agriculture helped one million farmers reduce 20% water use. In Brazil, companies launched a commitment letter to mayors in the São Paulo.

Innovation in the water sector may need to be taken slower due to the risk adversity of the public, investment cycles that often work under a 5-10 year timeframe, and the cost-benefit that is not always apparent. Innovation in the business sector will require modern, innovative, and customized technological solutions suitable to the diverse socio-economic requirements.

Cases from Asia, Central America and Africa highlighted how businesses are responding to water innovation. K-Water has improved utility management systems in an effort to pro-actively respond to climate change. Mexico City has engaged in public investments for water security to the growing metropolitan region. Mexico City has an ultimate goal of doubling the existing water network to supply water for all. The city of Nairobi is managing existing water infrastructure with the support of development aid, as financial resources remain a key challenge for the public sector. The focus in Nairobi has been in investing in programs to improve the capacity of the water utility by welcoming professionals and collecting data on the field to enhance performance and build trust with clients. Nairobi is also targeting new water sources, such as reuse and groundwater to improve the resilience and reduce the costs of services.



Pierre-Alain Roche

What is the declaration?

“The declaration is a collective answer on how the 1,000 participants at the XVI World Water Congress plan to bridge science and water policy.”

“It is a very simplified message collected from all of the communities gathered at the Congress.”

Why is the declaration important?

The WWC is one of the most important world meetings that will explicitly address the water issues from the point of view of “bridging science and policy.” This declaration is the best opportunity to call for evidence-based policies and provide solutions to build bridges between science and policy in our communities.

Why should people participate in creating the declaration?

“If we wish to find a consensus on this declaration we must all participate in the open discussion held on Wednesday night. Discussion on the declaration will wrap up tomorrow, Wednesday, and on Thursday we will write the proposal.”

“ You are encouraged to participate in the open discussion for the preparation of the Cancun Declaration which will take place on Wednesday from 7:00 to 8:30 pm on Cozumel 5. ”

PROGRAM

Wednesday May 31st

| Hours | Salon Gran Cancun | Cozumel 1 | Cozumel 2 | Cozumel 3 | Cozumel 4 | Cozumel 5 | Xcaret | Salón Mujeres | Coba |
|-------------------------------|--|--|--|--|--|---|--|--|--|
| 9:00 - 10:30 | | RS-24. Water and Sustainable Growth: Irrigation | SS-26: Reflecting on Regulating Water Security for Unconventional Gas and Oil | RS-34. Water Quality Management | SS-35(A): Multi-disciplinary perspectives on the Grand Ethiopian Renaissance Dam (GERD) and the future of water resources management and development in the Eastern Nile Basin | SS-76: Towards a Green Infrastructure in Latin America and the Caribbean | SS-65(A): Water Security and Climate Change - Challenges and Opportunities in Asia | RS-14. Water Policy and Governance: Economics of Water Governance | RS-21. Water Policy and Governance: Transboundary Aquifers on the Mexico-US Border |
| 10:50 - 12:20 | | RS-30. Water Quality: Contaminants of Emerging Concern | SS-30 Social Sciences approach to supporting stakeholder engagement for water policy development | RS-26. Water Policy and Governance: Regional and International Law | SS-35(B): Multi-disciplinary perspectives on the Grand Ethiopian Renaissance Dam (GERD) and the future of water resources management and development in the Eastern Nile Basin | SS-77: Achieving Water and Sanitation SDGs in Latin America and the Caribbean | SS-65(B): Water Security and Climate Change - Challenges and Opportunities in Asia | RS-41. Water and Sustainable Growth: Water-Food-Energy Nexus | SS-53: The Draft Articles on the Law of Transboundary Aquifers – Moving forward until the next UN General Assembly session |
| 12:40 - 14:10 | HLP: Integrated Water Resources Management | | | | | | | | |
| 14:10 - 15:30 *Poster Session | | | | | | | | | |
| 15:30 - 17:00 | | | SS-25(A): Water Quality Management – identifying opportunities for policy reform | RS-6. Water Security in a Changing World: Climate Change | | SS-48: Two Countries, Nine States: Colorado River Cooperation in a Complex System | SS-16(A): What next for water law and policy? Recent developments, future challenges and potential opportunities | SS-21(A): Water security and global-change adaptation: bridging science and policy | SS-34 (A): Bridging Stakeholders' Knowledge and the 8th World Water Forum Thematic Framework |
| 17:20 - 18:50 | RS-18. Water Policy and Governance | | SS-25(B): Water Quality Management – identifying opportunities for policy reform | RS-32. Water Ecosystems and Physical Regimes | SS-17: Empowering Young Water Professionals through Engagement in Global Water Community | RS-29. Water Security in a Changing World: Cooperation on the Mexico-US Border | SS-16(B): What next for water law and policy? Recent developments, future challenges and potential opportunities | SS-21(B): Water security and global-change adaptation: bridging science and policy | SS-34 (B): Bridging Stakeholders' Knowledge and the 8th World Water Forum Thematic Framework |
| 19:00 - 20:30 | | | | | | Open Discussion - Preparation of Cancun Declaration | | | |



High-Level Panel: Water and Climate

The purpose of this Panel was to first consider how to further promote the importance of water management in the COP process when dealing with the challenges posed by climatic changes- a particular focus was given to climate change adaptation. Then the Panel considered the implementation of the Global Climate Action Agenda through different projects, and proposed recommendations for future actions to be taken. The Panel was intended as part of the broader process that aimed to bring together key actors to further build an alliance for water and climate change issues, positioning itself as a key stepping stone between COP 22 and 23, and leading to the 8th World Water Forum.

The first speaker, Tom Soo, the Executive Director of the World Water Council, explained how collaborative thinking is central to shaping approaches to climate resilience. Jose Carrera, Vice-President of the

Development Bank of Latin America (CAF), shared the perspective of Climate Change Adaptation in the Latin American context, providing examples of climate change adaptation actions in Peru and Mexico. Considering the variety of issues faced in water allocation and water management, a crucial question was raised: how can COP 22 support these challenges? Then Jean-François Donzier, the Executive Secretary of the International Network of Basin Organizations, explained the significance of trust between basin level organizations to achieve sound water management. He stated that we are still facing problems of extreme climate phenomenon such as droughts, and water issues are now starting to be comprehensively considered. However, he concluded that there are tools to adapt from the effects of climate change.

The need for business sector considerations was addressed by Jason Morrison, CEO of the Water Mandate UN Global Compact. Involving businesses in local climate change adaptation also benefits these businesses, through return on investments. Examples were provided of partnerships between corporations and communities which have been hit by water resources issues stemming from the effects of climate change. There have now been many pilot projects that have showcased success in these business partnerships. The next step is to increase the scope and scale of such projects.

“ Fresh water is a time bomb, on the way to crash. ”

Jean-François Donzier, Executive Secretary, International Network of Basin Organizations

Shared Water of North America: Policies and Issues on Transboundary Water Resources

This three-part session on transboundary waters in North America highlighted the current cooperative efforts as well as opportunities for future collaboration in science and policy. The session was organized by the Geological Survey of Canada (GSC), University of Arizona Water Resources Research Center (WRRC), New Mexico Water Resources Research Institute (NMWRRI), Texas Water Resources Institute (TWRI), and North American Research Partnership: US-Canada Governance.



The key themes discussed throughout the sessions included:

- Future actions include the desire to exchange more information to develop trust and ensure aquifer protection and water rights;
- Importance of aquifer recharge in the future for transboundary aquifers and to mitigate extreme water stress;
- There might not be official agreements, but nations are cooperating by science, which is a form of collaboration and may represent an agreement by nature;
- Importance of the international joint commission (IJC) and International Boundary Water Commission (IBWC) as organizers of future events such as a groundwater summits and information sharing for North America.
- Future steps include connecting surface water and groundwater resources in North America.
- Importance of bringing multiple perspectives to the table to discuss transboundary aquifers including legal, policy, and science.

The first session highlighted the current technical advances and limitations in hydrogeological modeling for transboundary aquifers on both the US-Mexico and the US-Canada borders. This session also emphasized the need to determine physical relationship between surface water and groundwater resources not only in modeling but in policy and management as well.



The second session discussed the policies and issues on Transboundary water resources. As transboundary aquifers continue to be assessed and recognized, there will be an emergence of new hydrologic and political boundaries. This potential conflict may be preemptively reconciled through collaborative binational efforts.



The third session reinforced the theme of congress of "Bridging Science and Policy" by stressing the necessary working relationship between both scientists and policy makers for shared groundwater resources. Information sharing was suggested to be the foundation and bridge for future work in groundwater sharing and management.



Special Session 75: Peace for Water: The Global High Level Panel on Water and Peace's Vision

This session examined water as a tool for peace and reconciliation.

The session presented the purpose of the Geneva Water Hub's Global High Level Panel-Secretariat. The panel addressed transboundary conflicts by identifying legal, economic and institutional mechanisms to promote transboundary cooperation.

Dr. Alvaro Umaña Quesada explained the various themes of the panel's work. The key message was that all countries should negotiate and implement effective agreements, while focusing on efficient strategies based on the unique characteristics of a particular region.

Dr. Mara Tignino, Director of the Platform of International Water Law, presented water as both a weapon, and as a necessity protected by humanitarian laws. Water is sometimes considered to be a strategic asset in war, as the lack of drinking water can kill as many people as bombs. Water is also strategic because if there is not enough water, energy production can be affected; if there is too much, there is a risk of flooding. The world should consider the general principles of international humanitarian law and the necessity of caring about water and human rights during conflicts.

The session came to the conclusion that a clearer view of the details of any regions involved in conflicts over water is most urgently needed.



Building Green Infrastructure for the Latin American Water Sector

This session addressed the following questions: Why is green infrastructure important? How is green infrastructure being implemented in Latin America? What are the key gaps in opportunities to implementing green infrastructure?

How can we work together to address these gaps?

Implementation of green and blue infrastructure is essential to improve the resilience of cities and redefine the relationship between citizens and water. Green infrastructure includes forest conservation, river bank protection, sustainable agricultural practices, and wetland and glacier protection. Green infrastructure projects can substitute conventional infrastructure in some cases and complement it in others.

Several cities in Latin America face a water paradox, which means that those cities are threatened by both an excess and lack of water. One example is the Mexico City. The government of Mexico City is developing a strategy to improve the city's resilience through a network called 100 Resilient Cities (100RC). In 2013, Mexico City was chosen to be a member of the 100RC network and in 2016 they began to develop projects with along with 100RC. In accordance with these projects, the Mexico City government has focused on developing space transformation. Space transformation is an improvement, through the implementation of green infrastructure, of public spaces with the objective of mitigating floods, raising collective consciousness, and increasing infiltration. All those actions will affect the city's water culture and promote a new relationship between people and their water.





Water Security in the Americas

Water security is a fundamental element for achieving peace, social cohesion and poverty reduction. This is the main reason why the UNESCO definition is the only one that gained global agreement.

The idea that water security is an outcome of water governance drove the session. To achieve water security, regions ought to consider integrated management and strengthen their institutions. In many countries, legislation is obsolete and fragmented and there is a general lack of access to financial mechanisms to improve management. As an example, Latin America is a region with heterogeneous climate conditions. Yet, the region is quite homogeneous in terms of the current state of water security; sufficient resources exist but are poorly managed. This is a pity for a region that was able to demonstrate its capability in meeting and exceeding the Millennium Development Goals.

It was established that there is a clear need in the Americas for a Hemispheric Observatory on Water Security- a

multilateral observatory with an integral vision to analyze and suggest strategies to protect and conserve water for sustainable management. This observatory will rely on countries' information to contribute for strategic decisions with a long-term perspective. Presence in the media is also relevant since many politicians are more reactive to news than to research studies.

Building on the successful experiences, the second session showed relevant developments on integrative platforms of digital information on open access from the Instituto Panamericano de Geografía e Historia (IPGH) and the Inter-American Development Bank (IADB).

This digital tool will provide information for quantitative simulation of hydrology and climate change. This will allow assessment of the potential impacts of climate change on water flows and infrastructure and support the design of adaptive projects and strategies.

Smart Water Management (SWM): Bridge to WGG & SDGs - the technological innovation needed for "Water for all"

This special session emphasized the contribution of Smart Water Management (SWM) to new approaches in policymaking, as an innovative concept that needs to be considered in order to adapt to and resolve future water and energy crises. SWM monitors water distribution, consumption and quality as well as offers a way to work towards the implementation of the SDG 6. Different examples of SWM were presented, such as Sponge Cities in Asia, which use urban rainwater as an innovative source of water in large cities. SWM should be a way to serve public interest and operate a drift from innovation to progress. The ultimate limit to SWM lays in communication possibilities, which excludes some rural areas in developing parts of the world. In the developed world, difficulties lay in the infrastructural gap that can exist in rural areas, where even though water facilities are efficient, they cannot be adapted to the newest technologies.



Asia Water Council and the 1st International Water Week

In order to resolve water problems in Asia, the first Asia International Water Week (AIWW) has been introduced and will be hosted this September in Korea. This event will welcome people and originations from around the world to share data, knowledge, case studies and solutions on world water issues as well those specific to Asia.



Water Sanitation and Health: Ensuring Drinking Water

Water is vital for human health. Water is an essential and necessary component for all aspects of life, including drinking and providing adequate hygiene and sanitation. Unfortunately, the provision of these two services can be expensive and difficult to attain and maintain, particularly in rural areas where communities are far from centralized service areas. In this panel, speakers considered drinking water allocation case studies in Chile, as well as two different parts of Mexico (Oaxaca and San Luis Potosi).

The first speaker analyzed the efficacy of water and land use planning processes in Chile. Mr. Cristian Palma Infante and his colleagues created a qualitative and quantitative approach to analyze the connection between water planning and land use planning to see if each plan took the other into

consideration. This approach is useful for objectively determining the level of integrated planning for water and could have interesting implications in other places.

Moving from Chile to Mexico, Juan Carlos Tejeda-Gonzalez presented his work on how to improve integrated drinking water planning for rural areas in the Altiplano. This research involved a strategic environmental assessment of the planning process for areas that are underserved by the government. Based on this research, it was determined that stakeholder engagement at the local level has the potential to create lasting, community-driven solutions.

However, currently achieving meaningful stakeholder engagement is difficult in Mexico, where necessary forums for such engagement are not always available.

These case studies all managed to effectively weave in the importance of bridging the gap between science and policy by focusing on the importance of institutional, legal, and social aspects of water delivery services for human health.



Water Policy and Governance

An interesting session on policy and governance of water resources discussed how changes in policy have an impact on people, their welfare, and how they perceive the environment around them. It was noted that utilizing evidence based research will lead to better decision making. The focus and input of the research cannot only be data and decisions, but the stakeholders as well. Understanding what drives individuals to make decisions will enhance policy construction because these changes are influenced by the same drivers that influence individuals.

Governments can utilize private organizations, such as the Center for Expertise in Waters (CREW) in Scotland, to help develop policies around specific issues. When an issue arises or becomes apparent in a community, Scotland uses an outside

agency (CREW) to help quickly develop a range of policy options dedicated to addressing the issue at hand. Artificial intelligence and models can also be used to mimic human decision-making. These decision-making tools are transferable in scale, but the data is different.

It was established that policymakers need to recognize local needs. While the process for developing policies is transferrable, the data differentiates on local levels. This means there is likely not a one size fits all option for policy makers. Instead, they need to rely on scientific evidence/data to tailor their policy options to particular local issues. This works vice versa as well. Some differing local issues are addressed with one policy but not every issue needs its own tailored policy- one policy can address many issues.

Finally, it was emphasized that each policy change will have an impact on communities, and science needs to follow up on how these changes occur.



Lindsey Aldaco-Manner Texas A&M graduate student.



Do you believe the cities examined in your research (Dallas, San Antonio and Houston), are working in the right direction, and will it be enough?

"Yes, I think they are making significant conservation programs, especially SAWS. They are doing extensive outreach activities, because they are under some water stress. I do think there needs to be a more science-based approach to quantifying the water, which they are still lacking. However, their conservation programs in general are reaching the public. There is general conservation being shown, but there is no evidence of it being a result of these programs. Conservation could be coming from industry. We don't know."

What is motivating the consumer to conserve water?

"Water users are more likely to conserve if they were aware of a common water conservation goal they could be working toward and its broader impact on society. But if you are in an area that maybe does not have a water stress, there is less of a motivation.

Also economics plays a major role. People are driven by the dollar. If there is an incentive of 'Hey, if I use less water, I will save money,' economics is a huge driver. Those are the biggest ones."

Did any of your studies show that economics was the driver at all?

"The biggest evidence was in the automatic metering information. When they are shown on their bills, or they have it right on their phones. That was shown in Houston—they were one of the biggest users of this technology. [The meter] shows their utilities and how much water they are saving. But that is for the individual homeowners. That is not for those who are going to these educational programs. It is on a household level."

Victor Arroyo

Senior executive Operative Innovation and knowledge management direction.
Development Bank of Latin America

Many Multi-purpose Infrastructure projects become trapped in the planning phase and are not completed. Why is this, and how can this be combated?

Normally, multi-purpose infrastructure projects or multi-purpose water projects are very large. So, they need a large amount of financing. The process to obtain this financing is very complex. When you have private participation, every stakeholder has different interests, whether they are the energy sector, agribusiness, development or commercial banks. Additionally, every financial institution has different approaches. Environmental and social aspects are also added to the equation. This makes everything very complex. We need strong institutions to bring all stakeholders to a common position.

How can conflicting interests be managed?

You have to develop at the state level, a common view and a common model of managing water resources. Every sector needs water. Agriculture, mining, cities, and tourism needs water. So, the

economic development model of the country needs to be taken into consideration when you design your water resources management model. A country can distribute equally or with preference to a certain sector. This must be developed at the state level.

What role does science play in Multi-purpose Infrastructure Projects, and how can countries address gaps between science and policy?

Water resources management needs data. Data is available in developed countries, but often not in developing countries. In many developing countries they do not have enough meteorological or hydrological data to create a model. This data is very important to plan where the infrastructure will be constructed and how water resources will be managed. Countries need to develop this data, but they also need to construct alliances with other institutions and universities who could provide data from global technologies that are currently used. For example, in the United States, there are observations of

meteorological phenomenon from satellites. So, data is available but it is not always known by these developing countries.

