World Water Cities Forum (WWCF) 2024
Urban Water Policy Brief

Contents

I. Key messages

Measures for Enhancing Water Security in Urban Areas to Address the Climate Crisis

- **Proactive Strategies for Urban Water Security**: Cities must safeguard urban water security by enhancing water quality, flood control measures, and sustainable water use while adopting resilient infrastructure to address climate change challenges.
- **Technological Integration**: Advanced monitoring systems (IoT, AI-powered sensors) and climate-resilient infrastructure (flood barriers, green rooftops) are essential for real-time water quality and availability management.
- **Circular Water Economy**: Policies encouraging wastewater reuse and recovery of energy and nutrients can reduce dependence on freshwater resources.
- **Groundwater and Disaster Preparedness**: Green infrastructure for groundwater recharge and predictive models for water-related disasters enhance resilience.
- **Capacity Building and Public Engagement**: Capacity-building programs for planners and engineers, alongside public campaigns, promote sustainable water practices.

The Role of Local Governments in Promoting the Water Industry

- **Platforms for international cooperation and knowledge exchange**: Municipalities enhance international partnerships by hosting water-related events and participating in global forums, fostering collaboration and knowledge exchange in the water sector.
- **Catalysts for Innovation and Partnerships**: Local governments play a vital role by fostering public-private partnerships (PPPs), supporting water-related innovation clusters, and hosting global water events to strengthen international cooperation.
- **Public-Private Partnerships for Resource Optimization and Practical Solutions**: PPPs, with private operators working under public contracts with transparent performance indicators, offer practical, results-oriented options and solutions for local authority leaders wanting to make the best use of resources.
- **Smart Water Systems**: Adopting AI, IoT, and smart management systems enhances predictive maintenance, leak detection, and operational efficiency in urban water services.
- **Economic and Financial Support**: Municipal bonds, green financing, and simplified regulatory frameworks enable investment in water infrastructure while attracting global technology partners.
- **Localization of Global Goals**: Adapting global SDGs to local challenges ensures sustainable development, resource optimization, and community involvement in water management.

II. Background

The World Water Cities Forum Urban Water Policy Brief for 204 highlights the significance of taking proactive, data-driven and comprehensive approaches to urban water management. By addressing current challenges, recognizing emerging trends, and implementing recommended policy measures, cities can build water systems that are resilient, sustainable, and inclusive, serving the needs of both current and future urban populations.

Urban water management is essential for sustainable urban development, as it significantly impacts the health, well-being, and economic prosperity of urban populations. urban areas face a multitude of challenges concerning water supply, distribution, quality, sanitation, and resilience.

Rapid urbanization, population growth, and climate change are driving increased demand and placing significant stress on existing water resources. These pressures are further exacerbated by poor governance, insufficient investment, and gaps in technological innovation. Cities must implement strategies to provide a sustainable and resilient water supply for urban populations. Many urban areas face the challenge of outdated water infrastructure, which causes leaks, inefficiencies, and water losses. Investments in modernizing and maintaining water infrastructure are crucial to provide reliable water services. Urban water bodies are often subjected to pollution from industrial discharges, untreated sewage, and runoff from paved surfaces. Ensuring water quality through effective pollution control measures is essential for public health and the preservation of ecosystems. In addition, cities should respond to the effects of climate change, including extreme weather events, changing precipitation patterns, and rising sea levels, which lead to both predictable and unpredictable water-related disasters. In response, integrating climate resilience into urban planning becomes essential, including the adoption of nature-based solutions and the enhancement of urban flood defenses.This policy brief aims to provide an overview of the key issues, emerging trends, and recommended policy actions for tackling the complex urban water challenges that cities around the world are grappling with.

The World Water Cities Forum (WWCF) was first held as part of the 7th World Water Forum in 2015 and has continued annually in conjunction with the Korea International Water Week (KIWW) since 2016. The forum has been recognized as the prime venue for sharing urban water solutions among cities. Building on the success of last year's WWCF 2023, which dealt with the following three topics — 'City to City Learning: Experience & Knowledge Sharing to Improve Water Environment', 'Smart Water Management": Application of AI for Creating Sustainable, Resilient Water Ecosystems', and 'Response to the Climate Crisis": Urban Water Disaster Mitigation, Risk Reduction and IWRM'— the WWCF 2024 will once again serve as a platform for leading global urban water discourses based on professional insights and experiences of different strategic city partners and urban water experts. To address different emerging challenges related to urban water management in the world, the WWCF 2024 focuses on two (2) key themes as follows:

- **Theme A:** Measures for Enhancing Water Security in Urban Areas to Address the Climate Crisis

- **Theme B:** The Role of Local Governments in Advancing the Water Industry

III. Measures for Enhancing Water Security in Urban Areas to Address the Climate Crisis

i. Introduction

As the climate crisis accelerates and urbanization continues to expand, ensuring water security in cities has become a increasingly critical challenge. Urban water systems are more vulnerable to risks from rising pollution, frequent flooding, and seasonal water shortages, along with the additional threats posed by sea level rise in coastal areas. These mounting pressures demand that cities adopt resilient and sustainable water management strategies to protect their long-term water security in the face of climate crisis.

To address these challenges, cities should focus on safeguarding urban water security by enhancing water quality, advancing flood control measures, and promoting sustainable water use. Strengthening water infrastructure to adapt to the unpredictable impacts of the climate crisis and implementing effective water treatment solutions are essential to securing reliable water resources. By adopting comprehensive strategies, cities can better manage immediate risks while building adaptability and resilience for future environmental challenges.

ii. Governance, Management, and Policy Recommendations

Establish Advanced Monitoring Systems: Develop and deploy IoT technologies such as AI-powered sensors,smart meters, and predictive analytics where they are applicable to monitor urban water quality and availability in real time, enabling proactive responses to water security challenges.

Integrate Climate-Resilient Infrastructure: Invest in adaptive infrastructure such as flood barriers, permeable pavements, and green rooftops to mitigate flooding and urban heat island effects.

Promote Circular Water Economy: Implement policies that encourage wastewater reuse and the recovery of resources like energy and nutrients from sewage, reducing dependency on freshwater sources. Incentivize industries to adopt water recycling technologies to reduce industrial water footprint.

Enhance Urban Groundwater Recharge: Utilize green infrastructure, such as constructed wetlands and urban forests, to support natural groundwater replenishment processes.

Strengthen Disaster Preparedness: Establish predictive models with advanced technologies for water-related disasters within better governance and integrated systems, including droughts and floods, to improve urban resilience planning and response.

Adopt Regional Collaboration Models: Facilitate cross-jurisdictional cooperation for water management in metropolitan regions to address shared challenges like watershed pollution and water scarcity. Encourage joint investments in infrastructure and data-sharing for more effective, coordinated management.

Build Capacity Through Education and Training: Develop targeted capacity-building programs for urban planners, engineers, and policymakers, focusing on water security challenges and innovative solutions. Ensure young professionals are equipped with the skills for sustainable water management and promote greater inclusion of women in the sector through mentorship and

leadership pathways. Collaborate with universities and technical institutions to enhance knowledge exchange and foster long-term expertise in sustainable water management.

Incentivize Water Conservation: Implement tiered water pricing and provide subsidies for water-efficient appliances and technologies to promote responsible water usage among urban residents.

Expand Public Awareness Campaigns: Educate communities, starting from early education, on the impacts of climate change on water security and foster water conservation habits through city-wide outreach programs.

Encourage Multi-Stakeholder Partnerships: Engage the public, private sector, civil society, youth, women, Indigenous people, and academic institutions in co-creating innovative water management solutions tailored to urban needs.

iii. Highlights from Partner Cities

Partner Cities	Water challenge and ongoing practices and(or) strategies
Mikkeli, **Finland**	Mikkeli City is tackling water challenges intensified by urbanization and climate change. Seasonal fluctuations, heavy rainfall, and winter conditions frequently disrupt the city's stormwater management systems. Urban flooding remains a persistent issue, driven by limited drainage capacity and the reduced permeability of urban surfaces. Additionally, winter snow accumulation further complicates stormwater flow, requiring careful planning and infrastructure adaptation. To address these issues, the city has implemented innovative strategies, including: • Constructing wetland pools near stormwater discharge points to improve water retention and reduce pollutant loads. • Installing rainwater discharge buckets with shutters to manage accidental discharges and mitigate urban runoff contamination. • Transitioning from mixed-sewer systems to separate networks for storm-water and wastewater, significantly enhancing the system's capacity and efficiency. These efforts have led to measurable improvements in Mikkeli's urban water management: • Flood risks have been mitigated through improved stormwater retention and enhanced drainage capacity. • The separation of water networks has minimized contamination risks, pro-tecting urban water quality. • Mikkeli's infrastructure now demonstrates greater resilience to climate variability and seasonal challenges, establishing the city as a model for sus-tainable water management practices.
Kumamoto, **Japan**	Kumamoto City is globally recognized as a leading groundwater city, relying on its abundant, high-quality groundwater to supply tap water to over 740,000 resi-dents. This unique reliance has shaped the city's commitment to conserving its groundwater resources for future generations. Climate change has heightened water-related disasters across Japan, prompting Kumamoto to implement inno-vative measures to enhance water security and resilience. To address these challenges, Kumamoto City has implemented strategies aimed at both water conservation and disaster prevention: • Improving riverside land management, conserving forests, and increasing the water-retention capacity of paddy fields to mitigate flooding risks.

	• Launching urban revitalization projects to replace aging city center buildings with disaster-resilient structures. • Establishing a comprehensive groundwater conservation framework, including research into groundwater flow mechanisms, observation systems, and citizen campaigns for water conservation. The city has also pioneered efforts to enhance groundwater replenishment: • Artificial groundwater recharge through projects upstream of groundwater flow, involving forest management and rice field inundation in collaboration with neighboring local governments. • Citizen-driven water conservation movements that not only protect groundwater but also contribute to restoring river water levels. These initiatives have produced significant outcomes: • Kumamoto has earned international recognition for its efforts, including the "Water for Life UN-Water Best Practices Award" in 2013. • Enhanced groundwater security ensures sustainable water supply and disaster resilience for urban and rural communities. • Collaborative approaches with local governments and citizens serve as a model for urban water management globally.
Manila, **Philippines**	Metro Manila faces complex water security challenges due to its rapid urbanization, growing population, and the impacts of climate change. The region, which serves as the country's political, economic, and educational center, has seen its water supply coverage increase significantly from 48% in 1997 to 92% in 2023, but sewerage and sanitation coverage remain limited. The region also struggles with high levels of non-revenue water, a key issue that hinders efficient resource management. To address these challenges, the Metropolitan Waterworks and Sewerage System (MWSS) has implemented several innovative and collaborative strategies: • Construction of short- to medium-term water sources, such as the Bigte Novaliches Aqueduct No. 7 and the New Laguna Lake Water Treatment Plant, to meet the growing demand for potable water • Intensive recovery efforts targeting non-revenue water through infrastructure repair and system optimization • Development of treated wastewater facilities for potable "New Water" reuse, enhancing resource sustainability • Collaboration with international experts to improve existing water treatment facilities, ensuring better efficiency and water quality • Implementation of information, education, and communication campaigns to promote water conservation and raise public awareness These efforts align with the national focus on cohesive and systematic water management. President Ferdinand R. Marcos Jr., in his 2023 State of the Nation Address, emphasized the importance of centralized efforts to achieve water security, with PHP 14.6 billion allocated for water supply projects benefiting communities nationwide. The expected outcomes of these measures include: • Enhanced water resource sustainability through the completion of critical infrastructure projects

	• Improved water quality and availability across Metro Manila and its neighboring provinces • Increased public engagement in water conservation, fostering a culture of sustainable water use
World Youth Parliament for Water	The World Youth Parliament for Water (WYPW) emphasized the critical role of youth in addressing urban water security challenges amidst the escalating impacts of climate change. WYPW highlighted innovative and actionable measures to enhance water management and resilience in urban areas, fostering both immediate and long-term solutions. Key focus areas included: • Advocating for a circular water economy, emphasizing water reuse and resource optimization to reduce wastage and ensure sustainability • Promoting a transition to a clean-energy and AI-driven era, reducing water intensity in industrial and urban processes through technological innovation • Setting an ambitious goal to ensure that no child dies from unsafe water by 2030, underscoring the human rights dimension of water security and the urgency of global action The WYPW presentation called for immediate and collective action, urging stakeholders to: • Incorporate advanced technologies and AI in urban water management to achieve greater efficiency and resilience • Engage with the younger generation to foster innovative solutions and mobilize communities for sustainable practices • Prioritize equitable access to safe and clean water for vulnerable populations, aligning with the Sustainable Development Goals (SDGs)
Kathmandu, **Nepal**	Gokarneshwor Municipality, located in the Kathmandu District of Bagmati Province, Nepal, faces critical challenges in urban water security due to the effects of climate change, urbanization, and limited infrastructure development. With a population of 107,351 across 27,106 households, the municipality is grappling with issues such as water scarcity, contamination, and aging infrastructure. Inequitable access to water and ecosystem degradation further compound these challenges, impacting the reliability and quality of water resources. The effects of climate change are severe, with altered precipitation patterns causing prolonged dry spells and intense monsoons. These changes disrupt water availability, and glacial melt initially increases water flow but poses long-term risks of reduced supply. Additionally, flooding events caused by extreme weather often lead to pollution of local water sources, further limiting access to clean water. To address these challenges, the municipality has implemented several strategic measures: • Upgrading and expanding water supply systems to minimize leakage and enhance distribution reliability • Promoting rainwater harvesting systems in residential and commercial buildings to supplement local water resources • Strengthening partnerships and collaborations to ensure sustainable and equitable water use • Focusing on restoring natural filtration systems to improve water quality and increase resilience to climate impacts

	• Recent projects, such as the construction of a dam to augment the Bagmati River's flow during dry seasons, highlight the municipality's commitment to improving water security These efforts aim to mitigate seasonal shortages and provide consistent water access to local communities. The outcomes of these initiatives include: • Enhanced water supply reliability through improved infrastructure and resource management • Increased resilience to seasonal variations and climate impacts, ensuring sustainable access to clean water • Greater public engagement in water conservation efforts, promoting long-term sustainability
Ho Chi Minh, **Vietnam**	Ho Chi Minh City faces critical water security challenges exacerbated by its geographic location, climate change impacts, and rapid urbanization. As one of the 10 cities globally most threatened by climate change, the city grapples with issues such as water scarcity, saltwater intrusion, and urban flooding. Situated downstream of the Dong Nai River, its water resources are heavily influenced by upstream water regimes, particularly during the dry season when decreased water flow leads to fresh water shortages and increased salinity. Key strategies to address these challenges include: • Expanding water supply capacity through seven water plants with a total capacity of 2.25 million m^3/day, with plans to increase to 6.1 million m^3/day by 2060 to meet future population demands • Utilizing water discharge options from Dau Tieng Lake and Tri An Lake to counteract salinity and ensure clean water supply • Enhancing wastewater treatment capacity, currently treating 648,000 m^3/day, to improve river water quality, though further investment is needed to treat all domestic wastewater • Implementing flood prevention infrastructure to mitigate the impacts of tidal salinity and urban flooding • Increasing rainwater collection for agricultural irrigation, coupled with reducing agricultural land use to lower water demand
Goa, **India**	Goa, a state with a blend of urban and rural landscapes, faces unique challenges in securing drinking water for its urban population. With 16 urban drinking water treatment plants and a total potable water production capacity of 680 million liters per day (MLD), Goa aims to meet the demand of its residents at a targeted 135 liters per capita per day (LPCD). Despite achieving 100% tap water connections, several key issues persist, including 33-40% non-revenue water (NRW) losses and limited water quality testing at the consumer level. The state has outlined several strategies leveraging Artificial Intelligence (AI) to enhance urban water security: • Leak Detection and Infrastructure Monitoring: Using IoT-based systems to identify and reduce water leakage in the distribution network • Optimization of Water Treatment Processes: Employing predictive analytics to ensure efficient water treatment and energy use • Consumer Water Management: Implementing IoT-based consumer water metering systems to monitor usage and encourage conservation

	• Reservoir Management and Flood Control: Utilizing AI for real-time reservoir monitoring and flood mitigation measures • Decision Support Systems: Integrating AI to assist policymakers in crafting data-driven strategies for water management Recent initiatives in Goa under the Government of India's AMRUT (Atal Mission for Rejuvenation and Urban Transformation) program include: • Rehabilitation and upgradation of existing water treatment plants • Deployment of SCADA-based water treatment systems for automation and efficiency • Introduction of online water quality analyzers at treatment plants and IoT-based level sensors for remote monitoring • Reduction of carbon footprint through natural resource-based energy solutions These AI-driven solutions are complemented by consumer-focused measures, such as Android applications for water service feedback and education campaigns to raise public awareness about water conservation. The expected outcomes from these initiatives include: • Significant reduction in NRW losses, enhancing resource efficiency • Improved water quality through advanced monitoring and predictive maintenance • Greater consumer satisfaction and engagement through transparent and interactive systems

IV. The Role of Local Governments in Advancing the Water Industry

i. Introduction

Local governments play a vital role in supporting the growth and development of the water industry, focusing on sustainable development, resource management, and promoting economic growth. By protecting water resources, fostering innovation, and supporting collaboration between public and private sectors, local authorities lay the foundation for the water industry to thrive.

Local governments often lead efforts to preserve essential water bodies, implementing regulations to ensure their sustainable use and protection. They also encourage the development of a sustainable water industry through policy frameworks that support innovation and the adoption of advanced technologies. In addition, by promoting international partnerships and supporting local startups, local governments stimulate the growth of the water industry, fostering economic development and strengthening the resilience of water management systems.

ii. Governance, Management, and Policy Recommendations

Facilitate a Water Innovation network: Facilitate municipal innovation and technology clusters to support and exchange research, development, and commercialization of cutting-edge water technologies.

Foster Public-Private Partnerships (PPPs): Design flexible PPP models that attract investment in water infrastructure while ensuring affordability and equity for residents.

Implement Smart Water Management Systems: Support local utilities in adopting AI and IoT tools for predictive maintenance, leak detection, and operational optimization.

Facilitate Access to Global Markets: Assist local water industry actors in connecting with international development agencies and trade networks to scale technologies globally.

Promote Vocational Training Programs: Partner with academic institutions to develop specialized training for water industry professionals, addressing skills gaps.

Enhance Regulatory Frameworks: Simplify permitting processes for water startups while establishing stringent quality and sustainability standards to safeguard public health.

Develop Financing Mechanisms: Introduce municipal bonds and green financing options to fund water infrastructure projects and attract climate-focused investments.

Support Localization of SDGs: Guide local governments in adapting global water-related sustainability goals (e.g., SDG 6) to address local challenges effectively.

Encourage Citizen Science Initiatives: Enable community involvement in water quality testing and reporting, fostering transparency and public trust in local water governance.

Leverage International Knowledge Sharing: Actively participate in forums like the WWCF to exchange best practices and innovations in water industry promotion.

iii. Highlights from Partner Cities

Partner Cities	Water challenge and ongoing practices and(or) strategies
ELY, **Finland**	ELY Centre showcased Finland's comprehensive approach to advancing water sustainability and innovation through local government involvement. Emphasizing Finland's global leadership in water expertise, the presentation highlighted strategies that contribute to achieving Sustainable Development Goal (SDG) 6 and strengthening international collaboration in the water sector. **Key Initiatives and Achievements** • Finland's water expertise industry was valued at €6.3 billion in 2023, with projections to grow to €8 billion by 2026, showcasing its potential for global impact and collaboration • Through the Water Expertise Growth and Internationalization Program (2022–2025), €3.4 million was allocated to 21 projects involving over 30 SMEs, universities, and NGOs to enhance internationalization and technology development **Examples of Local Government Impact** • In Nepal, Finnish-supported initiatives facilitated the adoption of innovative water management technologies, improving access to clean water and empowering local communities to maintain sustainable systems. • In Vietnam, public-private partnerships (PPPs) helped modernize urban water supply systems, leveraging Finnish expertise to improve infrastructure and ensure sustainable outcomes. Previous development cooperation laid the foundation for these commercial projects, benefiting millions of people who now have access to safe drinking water, often referred to as "Finnish water" in Hanoi. **Key Recommendations** • Local governments should empower community members, farmers, and businesses to manage water services, adopt advanced technologies, and integrate water management into sustainable value chains. • Programs like the Developing Markets Platform, a collaboration between Business Finland and the Ministry for Foreign Affairs of Finland, provide mechanisms for accessing global development finance and entering developing markets, ensuring scalable and sustainable solutions.
Daegu , **Rep. Of Korea**	Daegu Metropolitan City, known as the "City of Water," plays a pivotal role in advancing water security and promoting the global water industry. Positioned along the Nakdong River, which supplies drinking water to over 10 million people, Daegu has developed robust infrastructure and networks to address urban water challenges and foster international collaboration. **Key Initiatives in Daegu's Water Industry** 1. Smart Water Industry Development • Test-Bed Facilities: Daegu provides advanced water industry demonstration facilities, enabling testing for drinking water treatment, wastewater reuse, industrial wastewater management, and sewage treatment technologies. • Korea Water Cluster (KWC): A state-of-the-art hub covering 100,000 m², the KWC focuses on developing installation and maintenance technologies for water systems, including pipe networks, valves, and auxiliary facilities.

	The cluster also serves as a platform for research and innovation in the water sector. 2. Global Water Cooperation and Networking • Participation in international water exhibitions and hosting significant water-related events, such as the Korea International Water Week (KIWW), a signature annual event co-hosted by Daegu. • Establishment of long-term partnerships with leading global water cities through the World Water Cities Forum (WWCF), fostering exchange programs and collaborative projects. 3. Promotion of Local Water Industry • Creation of a business park for water companies, offering support for technology certification, business development, and networking opportunities. • Active engagement with public and private stakeholders, NGOs, and academic institutions to build a resilient and innovative water industry. Daegu's comprehensive approach combines innovation, global collaboration, and local expertise, ensuring its leadership role in addressing urban water challenges while shaping the future of the global water industry.
Shiga Prefecture, **Japan**	Shiga Prefecture, located at the heart of the Japanese archipelago, is home to Lake Biwa, the largest and oldest freshwater lake in Japan. This iconic water body supports a population of 14.5 million through its vast resources and serves as the centerpiece for Shiga's innovative approach to promoting sustainable water industry practices. **Key Initiatives and Achievements** 1. Local SDGs Model – Mother Lake Goals (MLGs) • Shiga Prefecture introduced the Mother Lake Goals (MLGs), a localized adaptation of the UN's Sustainable Development Goals (SDGs), specifically designed around the preservation and sustainable use of Lake Biwa. • The 13 goals, developed collaboratively with citizens, aim to address environmental, social, and economic sustainability, with a target completion by 2030. 2. Shiga Water Environment Business Promotion Forum • This forum connects over 240 members, including companies, universities, local governments, and international organizations, to promote innovative water-related business opportunities. • Key objectives include utilizing research outputs, fostering business matching among members, and forming project teams to drive overseas expansion. 3. Tech Tour SHIGA – Industrial Tour Consulting Services • Offers tailored site and company visits within Shiga Prefecture, providing opportunities to explore water-related industries, build new networks, and create business opportunities. • The tours showcase Shiga's leadership in water environment management and promote knowledge exchange among global stakeholders. Outcomes and Impacts

	• The MLGs have become a model for integrating global sustainability goals into local practices, ensuring the preservation of Lake Biwa while fostering economic development. • The Water Environment Business Promotion Forum has enabled successful collaborations, both domestically and internationally, solidifying Shiga's position as a leader in water sustainability and innovation. • Through initiatives like Tech Tour SHIGA, the prefecture has strengthened its global presence, facilitating knowledge-sharing and advancing its contributions to the world's water agenda.
UNCRD	The United Nations Centre for Regional Development (UNCRD) has played a pivotal role in promoting sustainable regional development, with a particular focus on environmentally sustainable transport (EST), the 3Rs (Reduce, Reuse, Recycle)/Circular Economy, and water and water-related disaster risk reduction (DRR). Through the localization of Sustainable Development Goals (SDGs), UNCRD has supported local and regional governments (LRGs) in addressing urban water challenges and promoting innovative solutions for water security and resilience. **Key Contributions to the Water Industry** 1. SDG Localization and Public-Private Partnerships • SDG localization involves adapting global goals to align with local priorities, particularly in areas like water supply, sanitation, and water-related DRR, where LRGs are critical agents of change. • UNCRD promotes public-private partnerships (PPPs), enabling LRGs to serve as testing grounds for innovative water technologies while scaling sustainable solutions. 2. Capacity Building and Knowledge Sharing • In collaboration with UCLG ASPAC, UNCRD co-organized the "International Workshop on Building Smart and Resilient Cities and Communities in Asia and the Pacific" during the 10th World Water Forum. • This event facilitated capacity-building opportunities for over 80 participants, including 21 mayors and deputy mayors, showcasing good practices such as Daegu's Smart Water Industry and KWC, Toyota City's Water Digital Transformation, and Japan's Public-Private Digital Transformation Committee on DRR Challenges for LRGs in Promoting the Water Industry • Misalignment between local and national regulations delays projects and international standard compliance. • Dependence on international donors and national governments due to insufficient local funding for water infrastructure. • Language and cultural differences hinder effective coordination with international stakeholders. • Limited expertise impacts the efficient implementation of water management projects. Recommendations and Strategic Measures • Strengthening capacity-building programs to address technical gaps and enhance LRGs' roles in PPPs. • Encouraging city-to-city partnerships to foster collaboration between municipalities and private companies.

	• Showcasing successful case studies in workshops to inspire scalable and innovative solutions for the water sector.
SIWI	The Stockholm International Water Institute (SIWI) emphasized the crucial role of local governments in promoting the water industry. SIWI highlighted strategies for improving service delivery, fostering innovation, and ensuring climate resilience through collaboration with international organizations, private entities, and local communities. **Key Roles of Local Governments** Service Provision and Regulation: • Setting institutional frameworks for municipal water utilities, determining whether services are publicly managed or contracted to private providers. • Regulating tariffs, service delivery standards, and investment levels to maintain accountability and efficiency. • Facilitating performance management practices, including water conservation, improved management, and legislative reforms. Building International Partnerships: • Developing long-term relationships with international financial institutions (IFIs) and organizations like the Asian Development Bank (ADB) to support capacity building, technical innovation, and financial resources. • Examples include partnerships in Bangladesh to develop regulatory mechanisms and in Rajasthan, India, to mainstream fecal sludge management. Promoting Smart Technologies: • Adopting climate-resilient and smart water management practices, such as those implemented in Shenzhen under ADB's Climate-Resilient and Smart Water Infrastructure Project. • Encouraging innovation through public-private partnerships and integration of advanced technologies for sustainable outcomes. Challenges Faced by Local Governments • Limited coordination between local and national governments, particularly regarding the flow of funds. • Insufficient private sector and commercial finance engagement, despite its potential to complement public funding. • Capacity development needs in technology adoption and governance structures. Recommendations and Strategic Measures • Enhancing collaboration between local and national governments to optimize fund allocation and implementation of water management projects. • Increasing involvement of private sectors and international organizations to ensure financial sustainability and technological advancements. • Strengthening knowledge-sharing platforms and training programs to build expertise and capacity in water management.

AquaFed	AquaFed emphasized the vital role of local governments in fostering sustainable and innovative water industries. AquaFed explored partnerships between private operators and local governments, highlighting strategies to enhance service delivery, innovation, and economic growth in the water sector. **Key Insights** Private Sector Collaboration: • Private operators work under contracts with local governments to provide water and wastewater services. • Effective partnerships with local leaders and officials are critical for success. Localized Opportunities and Challenges: • Local governments are uniquely positioned to address climate change impacts, disasters, and population changes through innovation and infrastructure planning. • They play a pivotal role in creating enterprise zones and testbeds for new technologies. Financing and Regulation: • Leveraging international expertise and frameworks from development banks to improve financial structures • Sharing successful regulatory frameworks internationally to enhance private sector collaboration Public-Private Partnerships (PPPs): • Engaging organizations like AquaFed in the early stages to explore PPPs models tailored to local needs Capacity Building: • Training local officials and service providers to adopt innovative technologies and manage water systems effectively AquaFed's approach underscores the importance of collaboration between local governments, private operators, and international organizations. By fostering innovation, capacity building, and effective governance, local governments can lead the charge in promoting resilient and sustainable water industries globally.
Indonesian Water Association	The Indonesian Water Association (IdWA) highlighted the critical role of local governments in promoting urban water security and addressing challenges in the water industry. **Key Challenges and Strategies** Urbanization and Water Demand • Rapid urbanization has intensified pressure on existing water infrastructure, leading to disparities in access and quality of water services. • IdWA estimates that 30% of urban populations still lack access to piped water systems. Non-Revenue Water (NRW) and Infrastructure Gaps

	• NRW rates exceed 35% in some regions due to aging infrastructure, leakage, and illegal connections. • IdWA advocates for comprehensive NRW reduction programs, including real-time monitoring and digital solutions. Capacity Building and Governance • Local water utilities require enhanced capacity to manage water systems effectively, particularly in governance and technical training. • The association works closely with local governments to improve public-private collaboration and regulatory alignment. Innovative Initiatives Smart Water Management Systems • Leveraging AI and IoT to optimize water resource management, from leak detection to predictive analytics for maintenance. • Pilot projects in major urban centers have demonstrated the potential of these technologies to improve service delivery and reduce operational costs. Sustainable Financing Models • Partnering with international organizations to secure funding for large-scale infrastructure projects • Encouraging public-private partnerships (PPPs) to bridge funding gaps and enhance service efficiency Community Engagement • Conducting awareness campaigns to promote water conservation and encourage community participation in water management initiatives

Daegu Metropolitan City and World Water Council

WWCF 2024 Experts: *(names in first name alphabetical order)*
Firdaus Ali, *A representative of the 10th World Water Forum Host Country(Rep. of Indonesia)*, World Water Council
Jinyoung Jeong, *Professor*, Department of Environmental Engineering, Yeungnam University

World Water Council Focal Point: Yoonjin Kim, Director, Strategy and Development
Daegu Metropolitan City Focal Point: Jaeyong Kim, Assistant Deputy Director