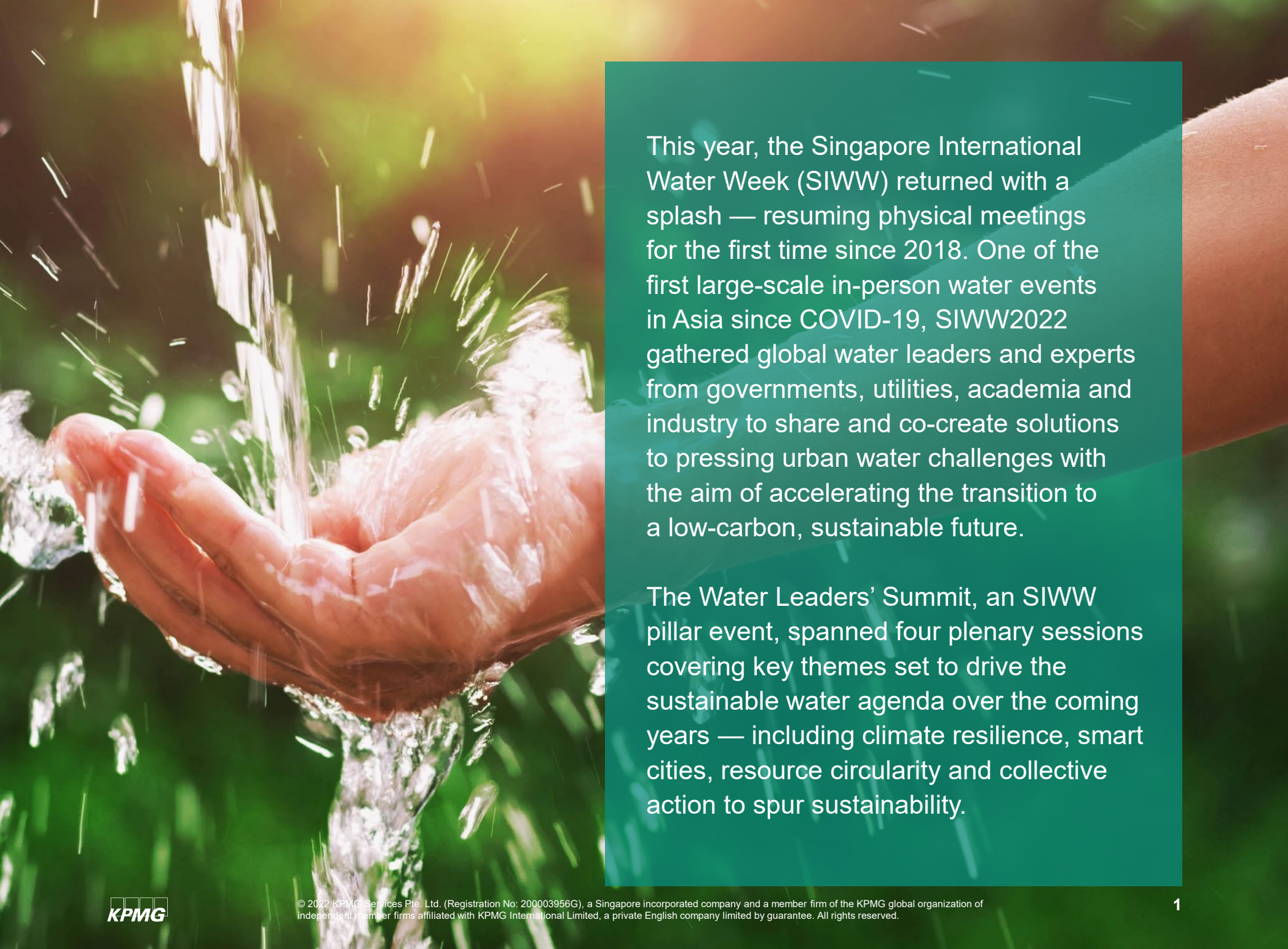
KPMG

Singapore International Water Week

Water security in a changing climate

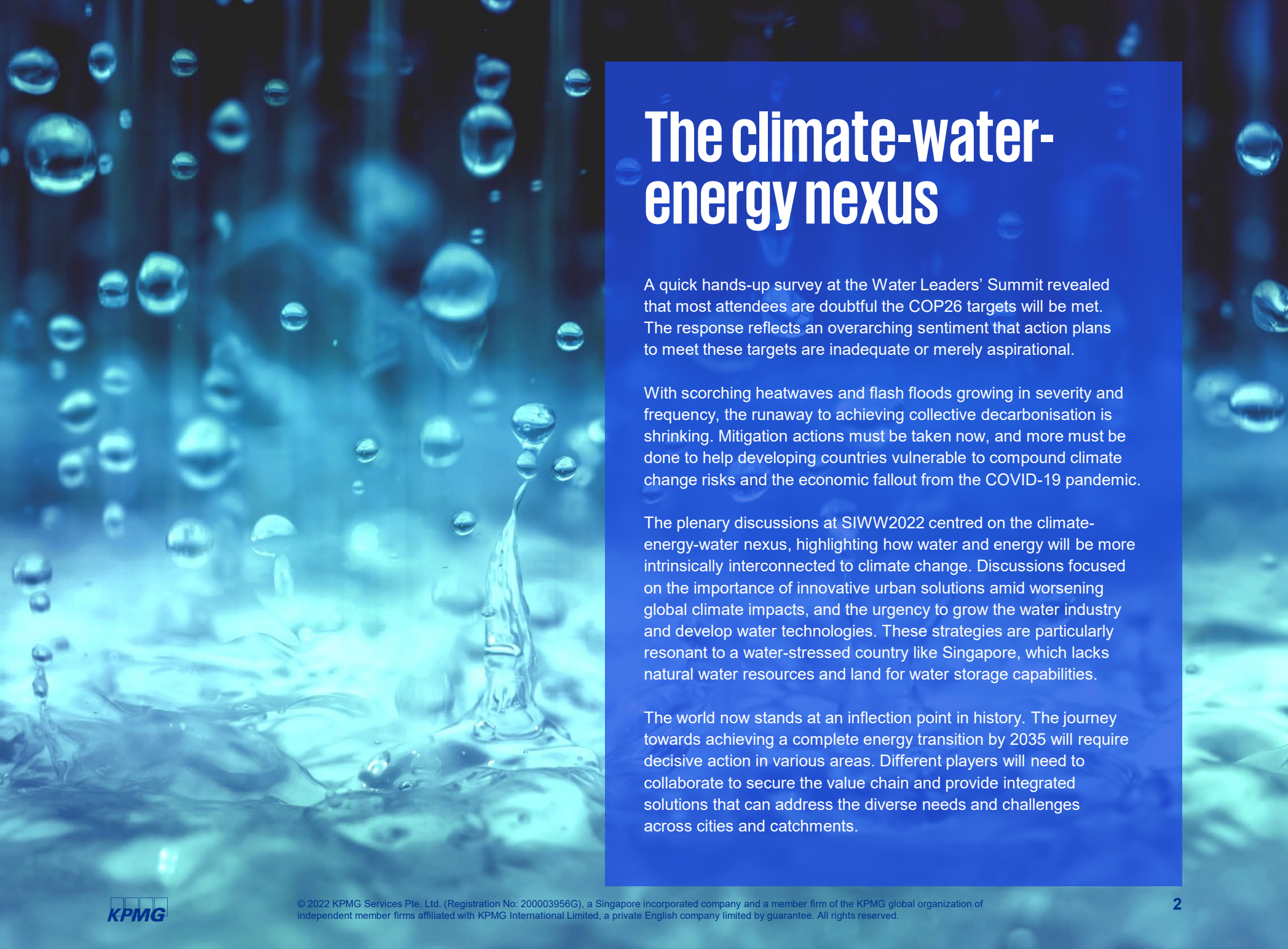
Key insights from Singapore International Water Week 2022

Quenching the world's thirst through sustainable, low-carbon solutions



This year, the Singapore International Water Week (SIWW) returned with a splash — resuming physical meetings for the first time since 2018. One of the first large-scale in-person water events in Asia since COVID-19, SIWW2022 gathered global water leaders and experts from governments, utilities, academia and industry to share and co-create solutions to pressing urban water challenges with the aim of accelerating the transition to a low-carbon, sustainable future.

The Water Leaders' Summit, an SIWW pillar event, spanned four plenary sessions covering key themes set to drive the sustainable water agenda over the coming years — including climate resilience, smart cities, resource circularity and collective action to spur sustainability.



The climate-water-energy nexus

A quick hands-up survey at the Water Leaders' Summit revealed that most attendees are doubtful the COP26 targets will be met. The response reflects an overarching sentiment that action plans to meet these targets are inadequate or merely aspirational.

With scorching heatwaves and flash floods growing in severity and frequency, the runaway to achieving collective decarbonisation is shrinking. Mitigation actions must be taken now, and more must be done to help developing countries vulnerable to compound climate change risks and the economic fallout from the COVID-19 pandemic.

The plenary discussions at SIWW2022 centred on the climate-energy-water nexus, highlighting how water and energy will be more intrinsically interconnected to climate change. Discussions focused on the importance of innovative urban solutions amid worsening global climate impacts, and the urgency to grow the water industry and develop water technologies. These strategies are particularly resonant to a water-stressed country like Singapore, which lacks natural water resources and land for water storage capabilities.

The world now stands at an inflection point in history. The journey towards achieving a complete energy transition by 2035 will require decisive action in various areas. Different players will need to collaborate to secure the value chain and provide integrated solutions that can address the diverse needs and challenges across cities and catchments.

When less is more: Towards carbon neutrality

The stakes have never been higher. And the 3R (reduce, replace, remove) mantra for a net-zero carbon world has never been more useful as a blueprint for progress.

To mitigate carbon output and achieve an energy-neutral future, the utilities sector has taken steps to reduce energy consumption and replace traditional energy sources with cleaner, renewable alternatives.

Decarbonisation benefits water security by boosting freshwater resilience and wastewater reclamation for consumption. To secure water supplies, the utilities sector will need to explore partnerships and promote youth-led projects that drive research and development efforts in areas ranging from biomimicry and affordability, to extracting value from data (IoT), while enhancing integration.

Resilience against sea level rise

As a low-lying island, Singapore is especially vulnerable to rising sea levels. About 30% of the country is less than 5 meters above sea level, and rising tides due to human-caused global warming pose an immediate threat.

Several cities, like Singapore, no longer have the luxury of time amid the increasing intensity and frequency of extreme weather events triggered by climate change.

To future-proof against coastal and inland flooding, cities will need to plan ahead and reimagine coastlines to keep their shores and people safe. This calls for collaboration, long-term vision and pre-emptive action.

Government agencies, experts, the community and various stakeholders, including businesses and interest groups, must come together to shore up solutions — from coastal protection measures to improved drainage systems.

Investing in nature-based solutions, which refer to actions and policies that preserve and restore ecosystems to address socioenvironmental challenges, will also be key. In 2019, the United Nations' Intergovernmental Panel on Climate Change shared that such solutions could help achieve 37% of emission reductions needed. By integrating them with current climate mitigation strategies, cities can adopt a more holistic approach to climate and environmental resilience.

Rising to funding and regulatory challenges

The water sector faces a stream of regulatory headwinds and capital-raising challenges in securing the flow of clean water. Still, from every challenge flows opportunity.

Mitigation and adaptation efforts can be costly affairs which require substantial funding. However, the returns on investment will be beneficial and far-reaching. Pre-emptive strategies to improve existing systems and infrastructure, for instance, can help to lessen the impact of natural disasters, potentially reducing disaster recovery costs and avoiding severe damage to water supply networks.

Stakeholders can explore various avenues to alleviate the cost of climate mitigation. The water sector can bundle multiple projects for economies of scale and tap into the green bond market for funding. Multilaterals and institutions can also assist municipal or sub-sovereign governments in improving credit risks to attract and enhance capital allocation.

Emerging markets that lack access to long-term affordable finance can tap the expertise of industry leaders and regulatory and technical specialists to deploy cost-efficient innovative solutions that help them leapfrog into a water-secure future.

A more sustainable future requires effective partnerships to create strategies and synergise efforts that make water-security solutions accessible, affordable and actionable.

Water resilience through cooperation

Over the past few years, the world has stood witness to erratic weather patterns which have increased water stress — directly affecting access to water

At SIWW2022, a panel of experts presented a solution-oriented approach to challenges specific to different areas. It covers a framework for water education and engagement, policy and regulation to encourage investments in water resilience, and a shift to optimised, data-driven water supply systems.

The approach calls on governments, utilities and the public sector to work jointly to strengthen water supply amid environmental change, water scarcity, growing global demand and increased energy costs. It requires various players to identify and develop an action plan for optimised smart water solutions and a more resilient interconnected system.

Demonstrating the strengths of cooperation, Singapore's national water agency PUB and Rwanda's Water and Sanitation Corporation signed a memorandum of understanding at SIWW to deepen collaboration and promote leveraging technology, capacity development and knowledge exchange on water supply management.

Getting smart about water systems

Water security is not simply about increasing water supply. It requires a transition to smart and resilient interconnected water systems to safeguard the world's access to this precious resource.

Three key themes are expected to drive this shift:

- safe and reliable access to water through innovation and significant investments, including in cyber security;
- scaling of technologies and infrastructure across the water cycle towards cost-efficient innovations; and
- sustainability of water resources and processes, with particular focus on wastewater treatment and private-public control of water systems.

Tapping global megatrends

Following COP26, most countries pledged to achieve net-zero emissions by 2050. While their commitments demonstrate a step in the right direction, purposeful action is needed to meet these ambitious targets.

Megatrends in the global water industry today point to opportunities for disruption. For instance, digital transformation has led to smart water innovations and digital tools driven by artificial intelligence and machine learning are driving better management of this resource.

At the Water Leaders' Summit, industry leaders shared concrete policy approaches and strategic imperatives for smart water infrastructure to power sustainable cities of the future.

Their proposed strategies include the rollout of environmental, social and corporate governance reporting and disclosure standards to ensure accurate monitoring and verification procedures, and leveraging sustainable financing to develop and transform water-intensive sectors.

In Singapore, the Government is taking decisive action. It aims to issue up to $35 billion of green bonds by 2030 to fund public sector green infrastructure projects. This could go some way in helping to address the climate-energy-water crisis.

Tides of change: The water sector in 2030

An overflowing need for water security is washing over the world, driven by shortages from climate change and a growing global population. As we journey towards 2030, these six levers are set to shape the way we obtain, produce and secure clean water.

- **Climate change:** Adaptation and mitigation efforts are no longer optional for many countries. Governments, businesses and communities must act now to ensure a sustainable future for this generation and the next.
- **Resource circularity:** Government policies will need to provide incentives and targets to secure water supplies. The private sector must also incorporate ESG considerations into their businesses to facilitate innovation and clear leadership in sustainability.
- **Carbon neutrality:** On the road to net-zero emissions, governments, businesses, industry and consumers will need to view energy, water and transport as interconnected, interdependent sectors to drive optimised operations and systems.
- **Digitalisation:** We are wading in “water 4.0”, where digital technologies are empowering a flexible, resource-efficient form of water management. From intelligent measuring and control systems to water treatment technologies, digital transformation of the sector is helping to stem wastage and untap savings.
- **Urbanisation:** An increasing urban population will lead to increased use of water resources. With urban areas expected to absorb the world’s population growth over the next four decades, countries will need to draw unique insights into possible solutions for urban water sustainability.
- **Water reuse:** Recycled wastewater has enormous potential to increase clean water capacity and our access to it. With holistic management solutions such as water conservation and efficiency practices, it can diversify water resources and strengthen water security.

About Singapore International Water Week

The Singapore International Water Week (SIWW) is a global platform to share and co-create innovative water solutions. The biennial event gathers thought leaders and stakeholders from the global water industry to share best practices and solutions, showcase the latest technologies and tap business opportunities. SIWW is part of a strategic programme of the Singapore Government to grow the water industry and develop water technologies.

The next edition of Singapore International Water Week will take place from 16-20 June 2024.

Visit www.siww.com.sg for more details.

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