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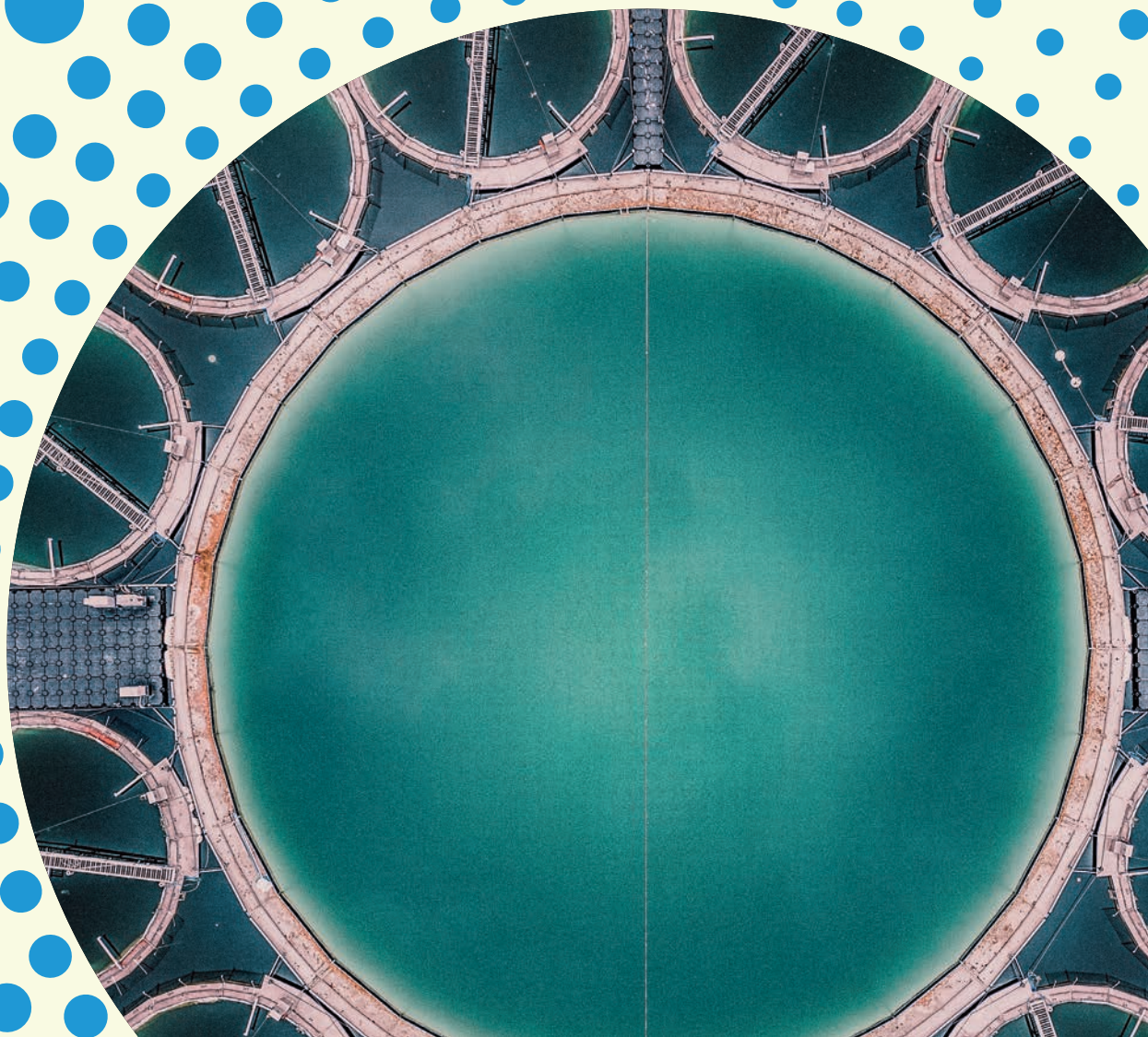
EXPO 2020 DUBAI UAE

غرفة دبي
DUBAI CHAMBER

Water Business Forum

POST SHOW REPORT



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BUSINESSES NEED TO SPEARHEAD **INNOVATIVE WATER MANAGEMENT SOLUTIONS**

Water underpins the global economy and without it, life cannot be sustained.

Water scarcity remains a challenge for many countries located in arid regions, which can be a barrier to sustainable development, if not addressed properly.

The Water Business Forum at Expo 2020 Dubai examined global water issues and addressed future challenges. The event – the final in the Business Forum series that took place throughout the fair's six months – provided an ideal platform for public and private sector stakeholders to share knowledge and offer new perspectives on how innovative technologies can transform water management and make it more sustainable.

At the same time, the event showcased business opportunities, cutting-edge technologies, and progress achieved by the UAE, International Participants and Expo partners relevant to the water.

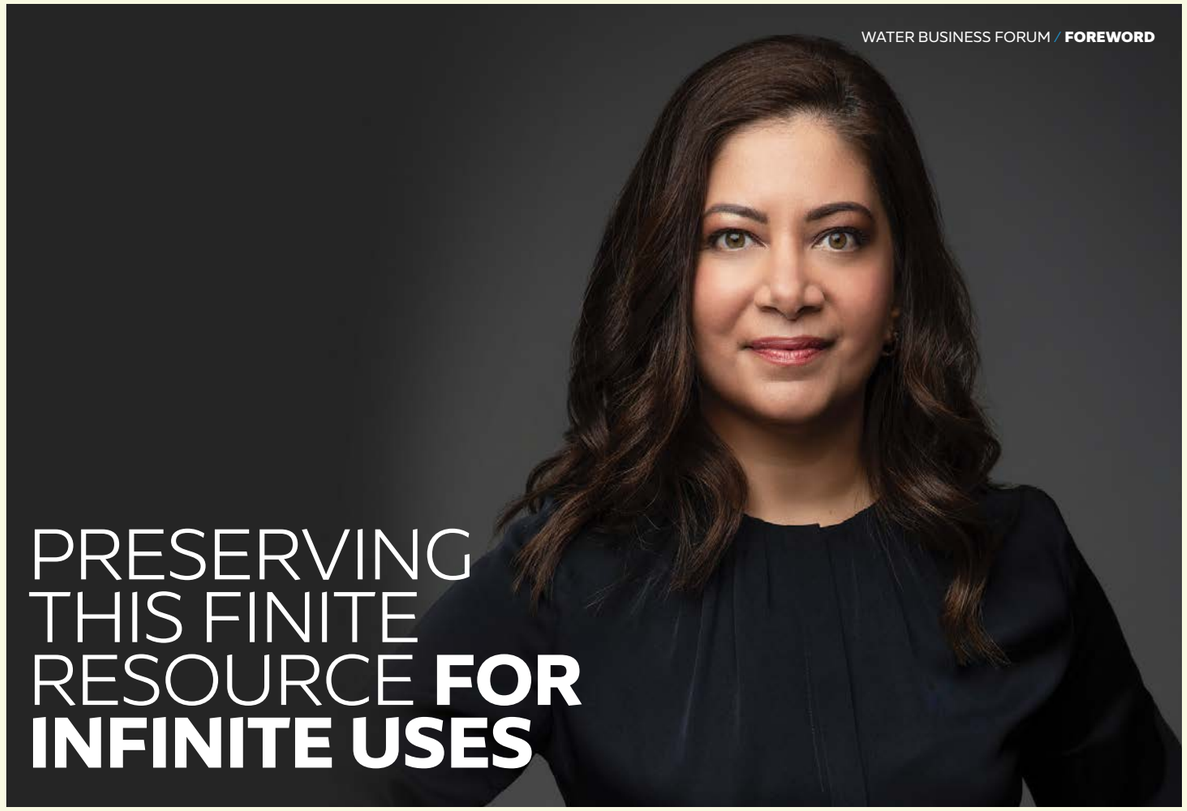
> **"Water scarcity remains a challenge for many countries located in arid regions, which can be a barrier to sustainable development, if not addressed properly."**

Sustainability was a central theme throughout Expo 2020 Dubai and the mega event highlighted the need for countries around the world to build sustainable agricultural and industrial systems that will allow us to decelerate climate change and protect the environment.

The UAE is a leading example of a government that has made sustainable water management a top priority as it adopts and utilizes innovative technologies to make water supply resilient, effective and affordable.

The UAE's Water Security Strategy 2036 aims to reduce average consumption per capita by half as well as focus on sustainable practices. Beyond progressive policies, what is needed now is more involvement from the business community in spearheading innovative water management solutions that can support the UAE's sustainability vision.

H.E HAMAD BUAMIM
President & CEO
Dubai Chambers



PRESERVING THIS FINITE RESOURCE **FOR INFINITE USES**

Our final Business Forum of the Programme for People and Planet, our Water event addressed how we might protect our most precious resource today, for tomorrow. It marked the culmination of a programme that has hosted more than 220 events, provided a platform for more than 1,700 speakers from 143 countries, and welcomed more than 14,000 attendees over the course of the six months of Expo.

Alongside a comprehensive sector update that identified relevant industries and potential partners for global collaboration, the Forum galvanised thought leadership and debate around issues critical to partners and stakeholders.

Sessions focused on rethinking water distribution to ease the plight of regions exposed to life-threatening and politically destabilising shortages, water security and management and the requirement for policy attention in this sphere, and the United Arab Emirates' Water Strategy 2036, which strives to ensure sustainable access to water during both normal and emergency conditions in line with local regulations, the standards of the World Health Organization, and the country's vision to achieve prosperity and sustainability.

Further sessions examined opportunities in the Blue Economy, digitalisation and innovation for water treatment and conservation, and enabling the circular economy through water sanitation. Delegates emphasised the value of an integrated and inclusive approach to a sustainable water future, as well as nominating solutions for network management and the application of space technologies to monitor and protect the world's oceans.

> **"The Water Business Forum marked the culmination of a programme that has hosted more than 220 events, provided a platform for more than 1,700 speakers from 143 countries, and welcomed more than 14,000 attendees."**

As ever, this Business Forum was able to convene conversations to co-create solutions in areas like employment, while providing partnership and networking opportunities for stakeholders, providing opportunities for startups and entrepreneurs to become part of the global dialogue, and connecting potential investors and clients through curated events, the Expo 2020 B2B app and through pre-approved pitch sessions.

In partnership with Dubai Chamber, co-created with Estonia, utilising the platform of Expo 2020 Dubai, and under the guidance of the leadership of the UAE, we are honoured to provide a platform for positive engagement around how we might preserve and sustainably manage this finite resource for infinite uses.

NADIA VERJEE
Chief of Staff
Chief of Programme for People and Planet
Expo 2020 Dubai

WATER BUSINESS FORUM / **INTRODUCTION**

HOW WILL WE PROTECT OUR **MOST PRECIOUS RESOURCE** TODAY, FOR TOMORROW?

Water fuels our sustenance but also moves money, goods, and people around the world. It also provides a valuable source of renewable energy and enables the world's food to grow.

Expo 2020 Dubai provided a platform to bring together citizens and stakeholders to understand how to preserve and sustainably manage this precious finite resource for infinite uses. The Water Business Forum highlighted the true value of water, as well as the progress and best practices in ensuring clean and adequate water for people, industry and the planet.

The water industry provides drinking water and wastewater services (including sewage treatment) to residential, commercial, and industrial sectors of the economy. Typically, public utilities operate water supply networks.

And the industry is set to embrace several changes in the coming years due to rapid urbanisation, severe climate changes, rising customer demands, and emerging digital technologies. These changes will present businesses with a complex set of challenges that could be worth addressing in order to stay competitive within the industry.

This Thematic Business Forum aimed to highlight the interlinkages between water and climate action. The Forum did this by promoting the adoption of integrated approaches to manage water and enhance climate action, including in the context of disaster risk reduction and health protection. The event offered a spotlight on water security, implementation of new technologies, and opportunities for investment within the water industry.

This is a topic that is of utmost importance to the GCC region. There are two sources of water in United Arab Emirates (UAE): desalinated seawater and groundwater. While groundwater is used for agriculture, drinking water is provided entirely from desalinated seawater across the Emirates.

Ultimately the programme took stock of the existing challenges and issues related to natural resource management within the context of climate change and sustainability globally. The session provided a platform to share information and lessons learnt, exchange ideas on proactive management of resources, opportunities, and cooperation among stakeholders and nations.

CONTENT PILLARS

1. **INNOVATION & DIGITAL TRANSFORMATION**
   In collaboration with Estonia, this focus area addresses innovation and digital transformation within the water sector. Topics include data, modelling, and digital twins, as well as wastewater treatment, energy efficiency, and automation.

2. **FINANCE & INVESTMENT**
   Highlighting the importance of sustainable and innovative financing and investment to drive economic growth within the water sector globally for a true global impact. This includes exploring blue bonds and the circular economy.

3. **SUPPLY CHAIN**
   Addressing key challenges and identifying solutions across the supply chain; from conception of the product, service, or solution, to design, planning, producing and distributing. Topics include wastewater treatment, the circular economy, freshwater basins, and groundwater supplies.

4. **CORPORATE SUSTAINABILITY**
   Bridging the gap. Corporate Social Responsibility (CSR) is no longer enough, and businesses and governments alike are beginning to address the triple bottom line, thrive, and grow while solving some of the world's biggest challenges. This includes providing water access to urban and rural communities, and sustainable water management.

5. **POLICY & PARTNERSHIPS**
   Designed to identify critical regulatory and governance changes required globally and locally to enable growth, sustainability, and innovation with the support of B2B, B2G, and G2G partnerships and relationships. Examples include public-private partnerships, water value chain, managing water resources, and marine and coastal management.

6. **SHOWCASE & PITCH**
   "Opportunities for Tomorrow" is a platform that provides innovators, changemakers, and industry leaders to showcase and pitch innovations, grow into new markets, and potentially source investment and win recognition to support business growth.

PROGRAMME **AT A GLANCE**

WATER BUSINESS FORUM

22 March 2022

DEC Hall 2A South
Part of Expo 2020 Dubai

THEME WEEK in association with the UAE Ministry of Climate Change & Environment, and the UAE Ministry of Energy & Infrastructure

HOST: Hazel Jackson

09:00 – 09:05	Welcome Address
09:05– 09:25	Special Remarks
09:25 – 09:50	Rethinking Water Distribution
09:50 – 10:30	Water Security & Management Around the World
10:30 – 10:50	UAE: Water Security Strategy 2036
10:50 – 11:20	Opportunities in the Blue Economy
11:35 – 12:05	Trailblazers of Tomorrow
12:05 – 12:40	Digitalization & Innovation for Water Treatment & Conservation
14:15 – 14:40	Parallel Session A1: Enabling Circular Economy through Water Sanitation
14:40 – 15:15	Parallel Session A2: Reimagining Water – An Integrated Inclusive Approach to a Sustainable Water Future
14:15 – 14:45	Parallel Session B1: Solutions for Water Network Management
14:45 – 15:20	Parallel Session B2: Future Development of Water as a Source of Connectivity
14:15 – 15:15	Parallel Session C1: Space technology for Sustainable Oceans

OUR **AUDIENCE**

PHYSICAL ATTENDANCE (by country of residence)

United Arab Emirates, Colombia, Malaysia, Brazil, Serbia, Guinea, India, United Kingdom, Estonia, the Netherlands

AUDIENCE FEEDBACK:

What did you like the most about this Business Forum?

"The panel discussion on the conservation and usage of water."

"Excellent presentation on the UAE's water readiness for 2036."

"That pavilions were actively involved in the programme."

"The breakout sessions were very good."

"High-quality speakers."

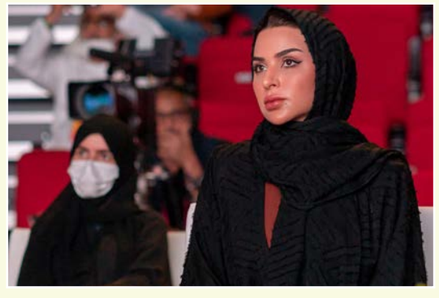
"Comprehensive discussions covering startups in the field."

"The quality of the exchanges, the venue, and staff."

"Great organisation."

"The sharing of best practices."

"The variety of presentations on the day."



Main Sessions

WELCOME **ADDRESS**

Protecting the planet's most valuable resource - water - is integral to limiting the impact of climate change and future-proofing global economies.

That was the message His Excellency Hamad Buamim, President and CEO, Dubai Chambers, relayed in his welcome address, which stressed the importance of public and private partnerships for safeguarding the blue economy to the benefit of all of humanity.

He said that the thematic weeks during Expo 2020 Dubai not only underscored some of the greatest global challenges facing humankind but also provided some of the biggest business opportunities to commercialise solutions to these critical issues.

"Water is the most valuable resource for all of us," he noted. "Of course, water underpins the economy as well,so we need to look at this from the business point of view."

Water, he stressed, is the fundamental ingredient of vital sectors that shape global economies, such as agriculture, oil production, and industrial production.

Water security also goes hand in hand with climate change, he added.

Rising temperatures can lead to too much water in some parts of the world, resulting in devastating floods.

Elsewhere on the planet, water scarcity can cause deadly droughts or ruin agricultural land, increasing the risk of large-scale wildfires.

These challenges require an integrated approach to water management, one that addresses resources, services, structures and risks all at once, said H.E. Buamim.

WATER SCARCITY IN MENA

Highlighting the unique challenges water scarcity will present in the Middle East and North Africa region, H.E. Buamim pointed to statistics released by the World Bank, which estimates that climate change will impact the regional economies by up to 14% of GDP by 2050 unless significant changes are made.

The United Arab Emirates (UAE) alone faces numerous challenges related to water resources, including water consumption, fresh groundwater reserves, and impact on its marine and coastal environments and agriculture. Other sectors – such as the production of oil and even trade and business – are also affected by water supplies.

Furthermore, being a coastal country, the UAE will also feel the impact of rising sea levels.

"Water has a big, big part to play in our lives," said H.E. Buamim. "We believe that we need to build sustainable systems that allow us to manage and deal with the challenges related to water."

He pointed out that global governments and policymakers are already adopting innovative technologies and sustainable solutions to transform cities into green and s mart metropolises for their inhabitants.

"Water is the most valuable resource for all of us."
H.E. HAMAD BUAMIM

KEY POINTS

- Protecting the planet's most valuable resource is essential for safeguarding tomorrow's societies
- Protecting water resources can limit the devastating impact of climate change
- The UAE Water Security Strategy 2036 aims to ensure sustainable access to water for all and reduce water consumption
- Public-private partnerships will be key in global water strategies

UAE'S STRATEGY TO PROTECT WATER RESERVES

In the UAE, protecting the most precious of natural resources is a key part of the country's future policies, said H.E. Buamim. He highlighted the UAE Water Security Strategy 2036, which aims to ensure sustainable access to water and reduce the average water consumption per capita by almost half in the next 15 years.

Private-public partnerships will also be an integral part of the strategy, he added.

The work being done in the UAE aims to impact lives not only on a national and regional level but worldwide, concluded H.E. Buamim, highlighting the importance of all societies coming together to solve the global water crisis.

SPEAKER

H.E. HAMAD BUAMIM
President & CEO
Dubai Chambers

SPECIAL **REMARKS**

SPEAKERS

H.E. SUHAIL MOHAMED AL MAZROUEI
Minister
UAE Ministry of Energy & Infrastructure

H.E. SAEED AL TAYER
Managing Director & CEO
Dubai Electricity & Water Authority

"Water is one of the subjects we all talk about. Having access to clean and sustainable water is the worry of every policy maker wherever you are."
H.E. SUHAIL MOHAMED AL MAZROUEI

During the thematic week focused on global water security from a business perspective and bringing commercial solutions to global challenges, His Excellency Suhail Mohamed Al Mazrouei, Minister, UAE Ministry of Energy and Infrastructure, said that making water affordable, high-quality and sustainable is a strategic priority.

"We started with very limited resources of water 50 years ago, so if someone can tell you how precious water is, it's this country," he noted. "Today, we've worked with tech providers to make desalination affordable and sustainable. One of the challenges is reducing consumption per capita." One major factor in consumption is farms, H.E. Al Mazrouei explained. This has led to a strategy to provide desalinated water for farm use, making the UAE one of only a handful of countries supplying desalinated water for farming and offering it at subsidised rates.

He also noted that the use of solar energy has helped the country reduce the cost of producing desalinated water to less than half a dollar per cubic metre.

The next step is to incorporate more renewable energy sources in the process and address the huge challenges of water storage, he added.

THE FUTURE DEPENDS ON TECHNOLOGICAL ADVANCES

"When it comes to the standards of water and desalination technologies, we have worked with technology providers to ensure we have some of the cleanest and most sustainable [water] sources from desalination," H.E. Al Mazrouei said, noting that the use of renewable energy is just starting to make an impact in desalination.

His Excellency Saeed Al Tayer, Managing Director and CEO of Dubai Electricity and Water Authority, echoed these sentiments.

The DEWA leader, who has more than 35 years of experience in the field, said, "Dubai [is] a global model for clean energy."

DEWA has been studying the environment to analyse the quality of water production, he noted, adding that capacity will increase to a total of 730 million gallons of desalinated water per day by 2030, up from 490 million today. Solar energy will play a key part in achieving this goal.

H.E. Al Tayercited the progress the authority has made in recent decades, reducing losses in the network from more than 42% in 1988 to 5.3% in 2021. This is one of the lowest rates worldwide thanks to technological advances.

"Water security represents a global challenge," he said. "It affects 40% of the world's population. It's a national security issue for the UAE and one of the seven strategic sectors of national innovation strategy."

The country's leadership has attached great importance to the issue, with the policy strategy focusing on rationalising water consumption, adopting cutting-edge technology and implementing innovative solutions, he explained.

"In line with the UNSDGs 2030 to ensure access to water for all, the UAE Water Security Strategy 2036 aims to ensure sustainable access to water during normal and emergency conditions in addition to future challenges. The UAE faces water-related challenges such as access to fresh natural water and depletion of groundwater."

Reducing water consumption in the country relies heavily on using solar energy to desalinate water through reverse osmosis, which is less energy-intensive, and utilising water aquifers when needed.

In addition to protecting the environment and offering a sustainable economic solution, the aquifer project can store up to 6,000 million imperial gallons of water as a strategic reserve, he explained. This will make it the largest potable water storage project in the world, providing an extra 50 million gallons a day for 90 days during an emergency while also ensuring the quality of stored water.

KEY POINTS

- Clean energy is key for the sustainable production of water
- Water security remains a key policy priority for UAE leadership
- DEWA is making significant reductions in water use thanks to technological advances
- Storage is an ongoing challenge that experts are addressing

RETHINKING **WATER DISTRIBUTION**

SPEAKERS

H.E. JOSE LUIS ACERO
Vice Minister
Water & Basic Sanitation, Colombia

EVA MARTINEZ DIAZ
Head of R&D Smart Services, Aqualia
Expert for Evaluation of R&D Projects, European Commission

MODERATOR

LAURA BUCKWELL
Former News Anchor, Event Host & MC

Latin America has close to a third of the world's water resources, yet vast swathes of the population lack access to clean water.

"We face challenges that currently are more or less the same in Latin America," said His Excellency Jose Luis Acero, Minister of Water and Basic Sanitation of Colombia. "We are a privileged region, but that doesn't necessarily mean that all the population has access to drinking water. So, our main challenge is to be able to reach what we committed to in the SDGs, which is universal access by 2030."

The main three indicators of good water distribution are coverage, availability and quality, according to H.E. Acero.

"At a regional level, we still have quite [large] differences between those indicators. Only two countries in Latin America have access above 99%."

Most other Latin American countries have access ranging between 75% and 98%. Colombia itself is expected to have water distribution coverage of 95% this year.

CHALLENGES IN LATIN AMERICA

At a micro-level, there are three fundamental issues facing the government of Colombia and Latin American governments in general. The first one is the gap in coverage between urban and rural areas, which is on average close to 14%, but varies between countries. The diversity in the geography of the countries is one reason for the gap. Building infrastructure through rainforests, moorlands and mountains is a challenge, particularly when it comes to the "last mile."

"To be able to provide water solutions for that [remote] community for that small town, it will cost close to 10 times what it will cost to provide water to one person who doesn't have water in an urban area."

The second issue is "to ensure that our utility companies are capable enough to respond and promote investment... The third issue is to ensure that we reduce our impact on the environment [and] increase our resilience against climate change. That will be the whole context for Latin America."

Eva Martinez Diaz, Head of R&D Smart Services, Aqualia, and Expert for Evaluation of R&D Projects for the European Commission, highlighted the use of smart technology to address the challenges facing the water sector and ensure a more proactive approach to water demand.

"We are using sensors and field devices to obtain the data and transmit it in real time and be able to understand what is happening in order to have a higher efficiency of all the processes, [as well as] to engage the end users, the customers, so they also understand the real value of water."

Despite the relative abundance of freshwater resources in Europe, about a third of the continent experiences water distress due primarily to human activities like intensive irrigation in agriculture and increase in tourism, particularly in the islands.

"[With] digitisation, there is a huge potential to increase the efficiency of the end-to-end water cycle and also it will help cities to adapt and become more resilient," she added.

Both speakers highlighted the importance of public-private partnerships in addressing the challenges of access to water and distribution.

"Over the past 25 years in Colombia, we [estimate] that we invested close to $300 billion in water and sanitation infrastructure; however, only close to 35% of that investment came from the private sector, which is actually low compared to other sectors," H.E. Acero said. "So, our main challenge currently in the sector is to diversify our sources of funding."

Providing access to water leads to a reduction of poverty, improvement in health and increase in productivity, and results are seen in the short term, according to H.E. Acero.

> **"If you want to provide water to someone in the capital in Lima it costs around $80, but if you want to provide water to that same person down in the forest or desert up in Colombia, it will cost you around $790 per person."**
> H.E. JOSE LUIS ACERO

KEY POINTS

- There is a lack of public-private partnerships in the water sector worldwide
- People in remote areas have poor access to clean water due to high operational costs and "last mile" infrastructure challenges
- Technology can play an important role in preventing water loss and anticipating demand
- The social dimension must not be forgotten when designing water policies

WATER SECURITY & MANAGEMENT **AROUND THE WORLD**

The demand for water is increasing as population numbers continue to grow every year and the world rapidly changes. Therefore, as a collective, we need to find ways to allocate water resources more efficiently.

"The more we conserve that resource [water] in a specific area, the more we free up resources to use in different areas," said Badr Soukarie, Head of Food and FMCG, Dubai Global Connect.

For developing countries, this becomes even more important since securing water resources will help enhance food security, he added.

"The more we invest in lowering water consumption in agriculture, the more we will have to manage distribution," he said. "[We need] to make sure the distribution of this resource is done in the most efficient way possible."

EVERYONE PLAYS A PART

With countries and corporations seriously rethinking their water usage policies, knowledge sharing has become imperative.

"There is no competitive advantage on sustainability," said Hussein Foda, SVP and Chief Sustainability Officer, PepsiCo AMESA. "The question is how we can replicate water usage production best practices across the globe and apply next-generation technology for water recovery and recycling."

> **"The key thing is we all have a role to play, and we don't have a lot of time."**
> HUSSEIN FODA

Foda illustrated how small changes can make a huge difference, using his company as an example. It made significant water savings at a plant in Latin America by simply changing the design of one nozzle used to wash potato chips.

SAVING COSTS WITH LOCAL SOLUTIONS

Yet, when it comes to sustainable water solutions, it is not only about finding the means to invest in innovations but also maintaining sustainable operations, according to Károly Kovács, President, Hungarian Water Partnership.

"[Sustainable solutions] need to be affordable [because] investments have to be paid back," he said. "And it's difficult to expect private capital to participate in these massive infrastructures."

This is why it is important to find local solutions, he added, since 90% of water costs currently sit with distribution systems.

"If we want to provide healthy water, we have to focus on the drinking part," Kovács noted. "On the other hand, [we need to] focus on the collection of waste and polluted water and the treatment of it in order to keep surface water and groundwater clean."

RAISING AWARENESS

Looking at the food-water-energy nexus, the panel discussed the need for more public-private partnerships (PPPs) to help solve the water crisis.

"A lot of our food requires high water consumption to produce, and protein is a good example," Foda said.

He added that through PPPs, the public and private sectors can work together on educating people and companies about the impact they have on water resources and how to preserve them, i.e. making the same products using less water.

"The key thing is we all have a role to play, and we don't have a lot of time," Foda noted, highlighting this as the reason "to act now, and act quickly" because "waste is our enemy."

Agreeing with the earlier point, Soukarie talked about several companies within the food industry delivering innovative solutions.

"Our role is to bring visibility to these companies [because] the more people see them, the more retailers and buyers see them, the better the overall culture becomes in the end," he said.

KEY POINTS

- The demand for water is increasing as the global population grows
- Investments that save water within the agricultural industry are necessary
- More public-private partnerships are needed to help solve the water crisis
- Innovations need more visibility to reshape water consumption habits

SPEAKERS

HUSSEIN FODA
SVP & Chief Sustainability Officer
PepsiCo AMESA

KÁROLY KOVÁCS
President
Hungarian Water Partnership

BADR SOUKARIE
Head of Food & FMCG
Dubai Global Connect

MODERATOR

HAZEL JACKSON
Chief Executive Officer
Biz Group

WATER BUSINESS FORUM / **MAIN SESSION 05**

UAE: WATER SECURITY STRATEGY 2036

SPEAKERS

H.E. SUHAIL MOHAMED AL MAZROUEI
Minister
UAE Ministry of Energy & Infrastructure

MODERATOR

LAURA BUCKWELL
Former News Anchor, Event Host & MC

Cutting water consumption, deploying advanced technologies and restoring groundwater levels are key to conserving the UAE's natural resources, delegates heard at the Water Business Forum.

His Excellency Suhail Mohamed Al Mazrouei, Minister, UAE Ministry of Energy and Infrastructure, shared key goals and achievements of the UAE's Water Security Strategy 2036.

"The strategy came out of necessity because we have limited water resources in the UAE," H.E. Al Mazrouei said.

The country's water scarcity principally stems from its arid climate and limited rainfall. With the UAE population forecast to cross 13 million by 2050, demand for water is expected to continue rising.

"We had to look at our resources to ensure that everyone who is living in the country has access to clean, adequate and affordable water for years to come," he added.

The nation relies on two main sources of water. The underground aquifer serves agricultural needs, while desalinated seawater delivers drinking water.

> **"In the UAE, we're consuming more from the ground than we are consuming from all of the desalination plants."**
> H.E. SUHAIL MOHAMED AL MAZROUEI

While more reservoirs are being built, groundwater is being consumed faster than it is being replenished, H.E. Al Mazrouei noted.

He laid out three steps to enhancing water security.

"If we cut our consumption by 40% to 50%, we can handle that growth in demand without doubling the capacity that we have. Second, we need to ensure that we are using the best technologies. Third, we need to recycle every drop of water we have."

WATER USE CUT BY A QUARTER

The minister, whose remit extends to national housing and infrastructure, pointed out that small filters in residential faucets cut water use by a quarter for a per unit cost of $100. He also highlighted the role of subsidies in raising consumer awareness: when water is cheaper, more of it is used.

Similarly, green building codes can improve water efficiency across the commercially important construction sector. H.E. Al Mazrouei said the UAE has already achieved its target of using 25% less water to construct schools and government buildings.

KEY POINTS

- Filters in water faucets have reduced residential water use by 25%
- The UAE uses 25% less water than before to construct public buildings
- Reverse osmosis plants will improve costs and efficiencies in desalination
- Better sewage water treatment can promote widespread use of recycled water

Demand can also be managed by identifying key performance indicators (KPIs) around water consumption in public buildings, he added.

Education remains essential to cutting water use, particularly on farms.

"We are trying to be wise about our choices, [about] what we can grow in the country and what we cannot grow in the country," he said. "For those of us living in this arid environment, we have to work harder."

PUTTING TECHNOLOGY TO WORK

Advanced technologies can support water security. Digitalisation can help authorities understand water needs, while artificial intelligence offers guidance on efficient use and deployment.

New technologies are also improving desalination. The UAE now plans to build more reverse osmosis (RO) plants, which are cheaper and more efficient to operate than facilities using multi-stage flash distillation.

When RO plants are powered by renewable sources such as nuclear or solar energy, desalination has a lower environmental impact, H.E. Al Mazrouei noted. Lower emissions and costs in turn cut the amount of water drawn from the aquifer.

"People don't know that in the UAE, we're consuming more from the ground than we are consuming from all of the desalination plants," he said.

Desalination meets 42% of the UAE's drinking water needs, while agriculture accounts for 60% of freshwater consumption.

The minister also touched on the need for water recycling. He said improving sewage treatment could promote wider use of recycled water.

"We need to recycle every drop of water we have," he pointed out. "We have to change the way our children perceive consumption. They think [water] is available and will be available forever, but water is a scarce resource."

KEY POINTS

- The blue economy can drive forward economic growth and social, cultural and environmental well-being
- Waterways, oceans and coastal areas can help diversify national economies
- Blue economies need public-private partnerships for sustainable development
- Global collaboration is key to safeguarding the world's most precious resource

OPPORTUNITIES IN **THE BLUE ECONOMY**

Sustainably leveraging the blue economy will only become possible through public-private partnerships (PPPs) and a unified effort to protect the planet's valuable water resources, according to global water conservation experts.

Chrissant Barbe of the Seychelles' Ministry of Fisheries and Blue Economy said valuing the ocean is not a new concept to the island republic. The country has derived considerable benefits from its ocean resources through the development of fisheries, tourism and trade.

He said the Seychelles is working to drive economic growth along with social, cultural and environmental well-being by fostering economic development and human well-being through the use of ocean-based resources.

This is being done by strengthening existing sectors, such as fishing, and investing in new and emerging sectors, such as marine biotechnology and aquaculture, he explained.

BLUE ECONOMY COLLABORATION

Collaboration with other sectors ensured a "coordinated approach for the creation of jobs for the people of the Seychelles," Barbe continued. "To effectively implement a blue economy, we need an integrated approach. More active engagement is essential."

Ibrahima Sory Camara of Guinea's Ministry of Hydraulics and Sanitation is working to improve the sustainable development of transnational water resources in the Niger Basin, which stretches over some 4,184 km.

The Niger Basin Authority is working to boost the economic development of the crucial waterway and improve the livelihoods of hundreds of thousands of people living around it. This is done by investing in the major resource, not just in terms of clean water supply but also the various economic functions it services, including agriculture and livestock rearing, fishing, energy, industries, transport and tourism.

A sustainable action plan to secure the future of the basin was only made possible through close collaboration. All nine countries involved developed the Niger Basin Climate Change Adaptation Programme (PIDACC) to increase the resilience of local populations and ecosystems to protect the basin.

The authority is now hoping for international support to continue advancing projects that will protect the vital water resource and support the economic diversification of the basin and its surrounding areas.

HIGHLIGHTING THE VALUE OF WATER

"Humanity should get involved in the preservation of this vital resource," said Camera. "Without water, there is no life."

> **"Without water there is no life. We need everyone to get involved in conservation and conservation of water resources and putting its value forward throughout the world."**
> IBRAHIMA SORY CAMARA

"We need everyone to get involved in the conservation of water resources and putting its value forward throughout the world."

Glenda M. Cadigal of the Palawan Council for Sustainable Development in the Philippines works to drive the sustainable development, management and conservation of the fishery and aquatic resources in the waters surrounding the archipelagic province.

The council has implemented several strategies designed to protect and replenish aquatic resources and curb unsustainable fishing practices, such as capping commercial activities in the waters.

Through grants, the council has also taught local communities agricultural skills and equipped them with the capabilities to introduce other sustainable ways of living rather than continue to deplete local fishing stocks. This is in line with UN SDG 14 to safeguard the world's oceans.

Cadigal said having more PPPs is vital in protecting the planet's most valuable resource, noting that Palawan adopts a "whole of nation approach."

"We are all working together to achieve one goal. We all need to work together for the greater good."

SPEAKERS

IBRAHIMA SORY CAMARA
Coordinator, Niger Basin Authority
Ministry of Hydraulics & Sanitation, Guinea

GLENDA M. CADIGAL
Project Development Officer IV – Environmentally Critical Areas Network Policy Research & Planning Division
Palawan Council for Sustainable Development

CHRISSANT BARBE
Principal Policy Analyst - Department of Blue Economy
Ministry of Fisheries & Blue Economy, Seychelles

MODERATOR

HAZEL JACKSON
Chief Executive Officer
Biz Group

TRAILBLAZERS OF **TOMORROW**

KEY POINTS

- Drinking water can be available to all
- Technology is key to reaching vulnerable communities
- Solar energy is the latest development to sustainably power desalination plants with low energy
- Waste water usage can transform the desalination industry

Making drinking water accessible to all is a key theme in the UN's Sustainable Development Goals. Spain-based Victor Monsalvo, Co-President of the Research and Development Committee at the International Desalination Association, shared experiences of low-energy desalination, which he said can produce 800,000 cubic metres of water a day.

He explained that sustainability is a top strategic priority for his company over the next five years.

The world's newest desalination plants run on solar power, and that is guiding the strategy for Monsalvo's own new developments.

Waste water contains chemical energy which is not being used, now the key resource to harvest in order to power desalination, he said. There is technology that could dramatically transform the desalination field and reduce energy usage.

"We had to rethink how we do desalination and look for revolutionary solutions," Monsalvo noted. "It's not only about one single technology; it's a whole system."

The company's system has developed from a lab-based project to pilot plants in Spain and the Canary Islands with the goal of achieving safe drinking water for all.

The aim now is to convert desalination plants into low-energy sustainable chemicals factories, he said. Ongoing projects in Europe include Sea4Value and REWAISE, which bring together 15 partners and 10 disruptive solutions.

SPEAKERS

VICTOR MONSALVO
Co-President Research & Development Committee
International Desalination Association

MATJAŽ IVAČIČ
Managing Director
GeoCodis Ltd.

LEONIE BANZER
German Business Technologist
Director Strategy & Business Development MEA,
Cloud & Heat Technologies GmbH

WATER FOR THE VULNERABLE

Matjaž Ivačič, Managing Director of Slovenia's GeoCodis Ltd, shared the positive message that drinking water for all is possible. Getting safe tap water in every home across the world is a global mission, with benefits including less waste and environmental protection. Ivačič said quality must be high, which will be achieved through excellent water management.

His company works internationally in water management, Earth observation, geo-informatics and telecommunications. It is helping make drinking water accessible in developing countries such as Rwanda. Ivačič said the goal is to improve water management and increase economic capacity for vulnerable people, in line with the UNSDGs.

Technology in the field is helping bring

"We had to rethink how we do desalination and look for revolutionary solutions. It's not only about one single technology; it's a whole system."
VICTOR MONSALVO

innovative solutions to remote villages such as those in the mountainous area of Rwanda.

In Uganda, the company is helping decision makers formulate a better strategy as the previous one lacked analytical data to solve the problems facing water provision.

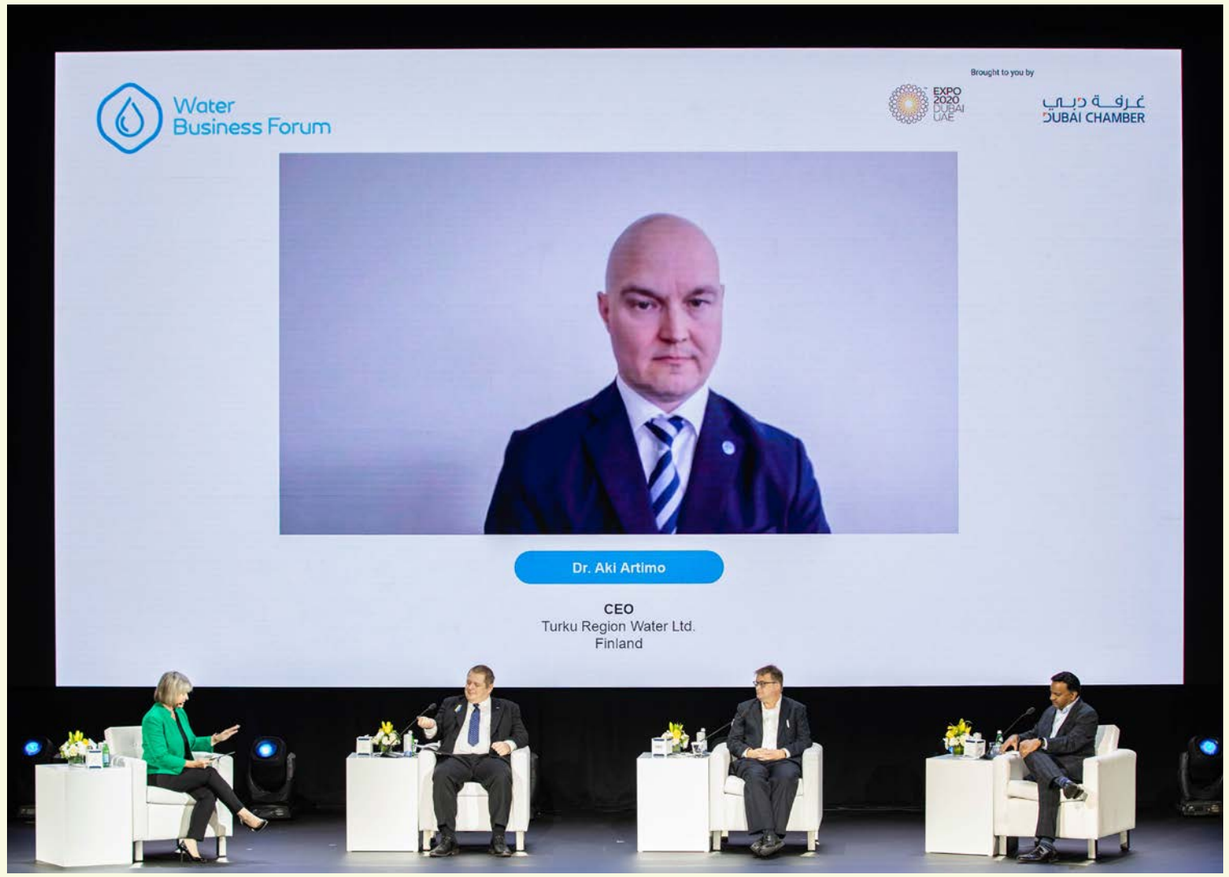
Leonie Banzer, German Business Technologist and Director of Strategy and Business Development for the MEA region at Cloud & Heat Technologies GmbH, discussed the concept of turning "energy to data and data to water."

"This whole process is CO2-free," she said.

Using technology and cloud data offers great potential for large-scale water production, giving the world the ability to produce about 3.8 million litres of drinking water per day, or 2,631 litres per minute, Banzer said. As she noted,this amount could supply the whole of Dubai.

The company can see the technology working on a global scale, and the hotter the region, the better. Banzer defined it as a "holistic" and sustainable approach.

Every drop of water consumed in hot regions is artificially produced, and now is the time to take advantage of technology and waste water, she suggested.



DIGITALIZATION & INNOVATION FOR WATER TREATMENT & CONSERVATION

Digital technologies are revolutionising approaches to water management, but several issues remain to be addressed if these tools are to serve the common good.

A public-private panel at the Water Business Forum on World Water Day highlighted that innovation is urgently required to cater to the needs of a growing population while addressing the consequences of climate change.

One example is Estonia. Until recently, its lakes and rivers held potable water. Intensive agriculture and waste pollution have changed this. More frequent rainfall – often in unpredictable patterns – has exacerbated the problem.

The Baltic nation has deployed several technologies to address the problem, said His Excellency Erki Savisaar, Minister of the Environment of Estonia. One of these is a digital twin. This virtual representation of the country's water systems helps monitor and measure the impact of gradual and sudden changes while predicting the likelihood and effect of adverse events.

Digital mapping and modelling tools also form the base of a digital twin of Finland's aquifer.

"This entity has been linked with extensive automation tools that are controlling the man-made part of this water infrastructure," said Dr. Aki Artimo, CEO of Finland's Turku Region Water.

As a result, the utility's entire 100 km-long water production system can be viewed and controlled by a single operator at any moment.

"We can actually pump more than 10 times more water from the aquifer by this managed recharge method as compared with the natural groundwater," he said. "And in our case, we can do that while preserving the aquifer in its natural state."

KEY POINTS

- A growing population, pollution and climate change are affecting water systems
- Innovation is desperately needed and digital technology can help
- Digital twins can pinpoint problems and identify possible solutions
- Industry-wide approaches can help achieve the UN Sustainable Development Goals

> **"Digital transformation is about exploiting digital technologies to kind of create a new operating model."**
> DR RAJA KADIYALA

BENEFITS OF DIGITAL TWINS

Dr. Markus Lade, General Manager Water and Wastewater at Siemens, said digital twins can optimise energy consumption. Desalination, for example, uses a lot of energy, but a digital twin can help reduce that consumption by 8% to 15%.

Dr. Raja Kadiyala, VP, Global Digital Market Director at Jacobs, shared the experience of a regional water authority in Texas that serves about 30 million people. Leveraging a layered digital twin across the value chain, the utility designed solutions that cut costs while optimising operations.

"We ended up saving $15 million across the entire asset lifecycle just by being smarter," he said.

Digital twins and other advanced tools can also pinpoint water leakages and help identify causes for unusual occurrences.

For instance, by overlaying analytics and geospatial locations with water supply data, Jacobs determined that an algal bloom was causing a sudden metallic taste in supplied water.

"Digital transformation is about exploiting digital technologies to kind of create a new operating model," Dr. Kadiyala said.

About 96% of utilities surveyed by Jacobs and the Water Research Foundation said they were likely to embark on digital transformation exercises over the next two years.

CHALLENGES OF DIGITAL TRANSFORMATION

Adopting digital transformation comes with several challenges.

Although the return on investment for digital technologies is high, the water industry is highly conservative, and concerns such as cybersecurity need to be overcome, Dr. Lade said.

Educating young people to bring their digital native approaches to industrial applications is the other side of the coin.

Third, a comprehensive approach to water management can help achieve the UN Sustainable Development Goals. Sectoral silos – from water utilities to wastewater treatment – must be exploded, and a holistic view to water management is required, according to Dr. Artimo.

Finally, data must be made public. Data collected by digital tools must be available to everybody in a way that is easy to understand so it can lead to smart decisions, H.E. Savisaar said.

"Technology is not the solution. Technology is a tool for helping us solve certain issues," he concluded.

SPEAKERS

H.E. ERKI SAVISAAR
Minister of the Environment,
Estonia

DR. MARKUS LADE
General Manager Water & Wastewater
Siemens

DR. RAJA KADIYALA
Vice President, Global Digital Market Director
Jacobs

DR. AKI ARTIMO
Chief Executive Officer
Turku Region Water Ltd.

MODERATOR

HAZEL JACKSON
Chief Executive Officer
Biz Group

Parallel Sessions

ENABLING CIRCULAR ECONOMY THROUGH **WATER SANITATION**

There are countries where drinking water is widely available, but for the majority of the world's population, it is very hard to access clean, drinkable and safe water, His Excellency Jan Budaj, Minister of Environment of Slovakia, said in an introductory keynote.

"The value of water to humanity and economic well-being is incalculable. Water is a limited and vulnerable resource," he said.

The forum looked at a host of serious threats to water caused primarily by human activity, including pollution, climate change and urban growth. Circular economy solutions, where resources are reused for as long as possible, are one way to mitigate the impact of these threats.

H.E. Budaj spotlighted water pollution as an urgent problem. Eleven million tonnes of plastic waste end up in the seas and oceans each year, he noted. In response, 175 nations – including Slovakia – endorsed a resolution to stop plastic pollution by the end of 2024 at the UN Environment Assembly in Nairobi in March.

> **"The value of water to humanity and economic wellbeing is incalculable. Water is a limited and vulnerable resource."**
> H.E. JAN BUDAJ

Slovakia is working to improve water management by promoting the circular economy, H.E. Budaj explained. A new water policy focuses on water retention, measures for prudent agriculture and forestry, and reuse of rain and treated wastewater. Other strategic initiatives include a ban on single-use plastics and a compulsory deposit scheme for PET bottles and aluminium cans.

"At the time of climate crisis, it is important to raise ambitions. For more effective water sanitation and to introduce innovative and environmentally friendly technologies in water management, this is the way to strengthen water protection and preserve safe water resources for future generations," the minister said.

INNOVATIVE GRASSROOTS APPROACHES

The keynote was followed by a fireside chat with water sector innovators, who discussed grassroots approaches to improving access to water, sanitation and circularity.

Fariel Salahuddin, CEO of Goats for Water – UpTrade, said the world needs innovative thinking and fresh approaches to existing ideas to improve access to water.

She explained how her organisation created an innovative bartering model through which off-grid, water-stressed rural communities in Pakistan purchase solar water pumps using their livestock as currency.

"Our job with the communities is to give access to the water that exists," she said. "But it's very heartbreaking because the quality of the water obtained is very poor."

An answer could come from Plasma Water Solutions. This Chilean firm uses a plasma sanitation technology to purify water on demand for human and agricultural needs by eliminating bacteria and viruses of all kinds. The technology is fully sustainable.

"Every 90 seconds, a child dies because of drinking polluted water," said its Founder and Chief Innovation Officer, Alfredo Zolezzi.

KEY POINTS

- Water pollution is an urgent problem
- Every 90 seconds, a child dies from a disease caused by polluted water
- Some rural communities in Pakistan barter livestock for solar-powered pumps
- Plasma technology can kill nearly a billion cholera bacteria in 15 milliseconds

His company's system kills nearly a billion cholera bacteria in 15 milliseconds, using less energy than a hair dryer, he said.

Zolezzi now wants to bring the technology to underserved communities with the help of the private sector. A pilot project in rural areas outside Nairobi, Kenya, currently provides clean water to 10,000 school children. The project is organised in partnership with plane maker Airbus.

The next stop could be Pakistan. Salahuddin pointed out the need for technologies such as plasma purification in the communities she works with, and Zolezzi spoke of his commitment to take the technology to Pakistan once it is ready for widespread use.

SPEAKERS

H.E. JAN BUDAJ
Minister
Ministry of Environment, Slovakia

FARIEL SALAHUDDIN
Chief Executive Officer
Goats for Water - UpTrade

ALFREDO ZOLEZZI
Chief Innovation Officer & Founder
Plasma Water Solutions LLC

MODERATOR

LAURA BUCKWELL
Former News Anchor, Event Host & MC

REIMAGINING WATER – AN INTEGRATED INCLUSIVE APPROACH TO A SUSTAINABLE WATER FUTURE

SPEAKERS

MARTIN RENCK
Founder & Creative Director
Wayout International

ADAM HOSKING
Global Solutions Director,
Water Resources & Resilience
Jacobs

GUILLERMO HIJÓS GAGO
O&M Desalination Middle East Director
ACCIONA

GONZALO MEDINA
Executive Director
Ministry of Government & Community of the Province of Rio Negro Investment Agency

KEY POINTS

- Wayout's system can provide 2,000 people with drinking water every day
- Jacobs brings holistic thinking to water management
- Acciona increased Adelaide's water reserves through desalination
- Patagonia's green hydrogen project could see the largest investment in Argentina

WAYOUT

Martin Renck, Founder and Creative Director of Wayout International, introduced the Swedish startup, explaining that the company offers complete water production systems for local coverage of perfect drinking water on a commercial platform with a minimal eco footprint.

One single Wayout system can provide 2,000 people with drinking and cooking water every day, Renck noted. He spoke about the company's work on the Serengeti in East Africa and how localised water production powered by solar energy eliminates long-distance transport and ensures resilience to interruptions. At the same time, a fully digitised system comprising three pieces of hardware, including smart pods, provides data and enables optimisation.

"We filter [dirty water], turn it into H20 and [then] remineralise it,[resulting in] locally produced mineral water at an efficient energy level," he said.

JACOBS

Adam Hosking, Global Solutions Director, Water Resources and Resilience, Jacobs, presented the company's One Water solution, which is designed to bring holistic thinking around water management, in part by embracing technology.

"Technology is not the challenge; it's how we embrace and integrate it," he said.

Hosking added that part of the holistic approach is acknowledging that all water has value, even when considered to be wastewater, which should not be wasted but reused. As a global consultancy, Jacobs adopts a collaborative approach to developing long-term solutions to complex and interrelated challenges.

Hosking then highlighted the Seawater Energy and Agriculture System (SEAS) – a pilot study undertaken in Abu Dhabi – that took sea water from the Gulf for use in ponds to sustain aqua culture, utilising mangroves as a cleaning and filtration system to ultimately create biofuel for use in aviation. He provided more water solution examples from Singapore and the US.

"Green hydrogen is a highly flexible energy carrier, offering clean energy systems approach that contributes to mitigating environmental problems to ensure the future of energy."
GONZALO MEDINA

ACCIONA

Guillermo Hijós Gago, Acciona's O&M Desalination Middle East Director, Qatar, spoke of the company's work in shifting perceptions about desalination to help Adelaide, a predominantly dry region of Australia, increase its water reserves to keep up with population growth.

He said that in the Middle East, specifically the Gulf region, desalination is widely accepted. However, common perceptions in Australia are that seawater desalination is an environmentally irresponsible and energy-intensive way of producing water.

"Desalinating water is energy-intensive but sometimes is the only solution to obtain water," he noted.

He went on to showcase how Acciona was able to establish a desalination plant in partnership with the South Australian Water Authority while ensuring minimal impact on marine, terrestrial or atmospheric environments.

RIO NEGRO INVESTMENT AGENCY

Gonzalo Medina, Executive Director, Ministry of Government and Community of the Province of Rio Negro Investment Agency, spoke about Argentina's Patagonia region, noting that the ministry regards water as a future energy solution. It focuses its science and technology efforts on developing green hydrogen as an alternative energy solution to reduce reliance on fossil fuels.

"Green hydrogen is a highly flexible energy carrier, offering a clean energy systems approach that contributes to mitigating environmental problems to ensure the future of energy," he said.

Medina showcased a conceptual study of the first pilot green hydrogen production plant in the Rio Negro region. Executed in partnership with Fraunhofer IEE, it could result in the largest foreign investment in Argentina.

WATER BUSINESS FORUM / **PARALLEL SESSION B1**




SOLUTIONS FOR **WATER NETWORK MANAGEMENT**

SPEAKERS

LAXMAN ARAGA
Industry Manager – Water Wastewater
Endress+Hauser Middle East

DR. ZAINI UJANG
Secretary General
Ministry of Environment & Water, Malaysia

ALEKSANDR TIMOFEJEV
Chief Executive Officer, Tallinna Vesi

REIGO MAROSOV
Chief Executive Officer, Watercom OÜ

International experts shared technology-driven water treatment solutions to reduce water waste, increase water quality and help overcome the scarcity of clean, fresh water.

As intense pressure is placed on the planet's limited water supplies, governments worldwide need to increase the resilience and sustainability of the water supply and sanitation sector, the panel heard.

Laxman Araga, Industry Manager,Water Wastewater, Endress+Hauser Middle East, discussed the way smart monitoring technologies can help companies manage more sustainably their vast water supply networks.

UTILISING DATA

Endress+Hauser uses smart measuring instruments, analytical technologies and cloud-based monitoring systems to allow companies to detect water waste much quicker.

"We can get data from cloud networks and analyse this and get meaningful information about the processes," said Araga.

Through smart monitoring, technologies can ease the pressure on stretched water resources.

"At the click of a button, we are able to understand what is really happening," he added.

Dr. Zaini Ujang, Secretary General at Malaysia's Ministry of Environment and Water, discussed water innovations in his country.

Malaysia, he said, has one of the world's highest rates of water consumption per capita.

FUTURE-PROOFING WATER SYSTEMS

To reduce the burden of demand for treated drinking water and ensure a continuous supply of clean water sources, the government is enhancing its sewerage and wastewater treatment plants with technology-led improvements that will provide data to optimise systems, Dr. Ujang said.

Proper sewage treatment is paramount as the vast majority of Malaysia's fresh water supply comes from surface water.

The country also gives subsidies to independently managed water companies and regularly educates businesses and the public on water waste and usage.

"The way we do it is to ensure the customers are empowered," he said.

Even in advanced economies, many urban dwellers still do not have their sewage adequately treated, and wastewater is often discharged untreated into rivers and estuaries or used as irrigation water.

PROMOTING TAP WATER

Estonia is using technologies to ensure tap water is as good as bottled water.

Aleksandr Timofejev, Chief Executive Officer of Tallinna Vesi, gave a joint presentation with Reigo Marosov, Chief Executive Officer of Tallinna Vesi subsidiary Watercom OÜ.

They said Estonia is working to change the perception of tap water, improve water quality and reduce water waste.

"It is really important to invest in the environment. Invest in your assets. Invest in quality. Invest in people. If you invest in them today, they will work for you."
REIGO MAROSOV

KEY POINTS

- Innovative technologies are key to preventing water scarcity
- Data-led systems and smart monitoring tools can help companies become more sustainable
- Public education is key to protecting the planet's most valuable resource
- Investing in technology today will bring benefits tomorrow

More than 20 years ago, water consumption was "huge" but water quality was "really poor," Timofejev noted. This was coupled with a high percentage of water leaks in piping systems, leading to massive water waste.

Fast-forward to today and water leaks have been slashed by about two-thirds. In addition, in 2018, compliance in water quality at the customer's tap reached 100%. New wastewater treatment plants have been built and existing ones upgraded. Huge investments have also been made in sanitation systems.

Raising public awareness about the quality of tap water has been important for Tallinna Vesi, which provides water for one-third of the Estonian population. The company is leading mass education campaigns about tap water being as good as bottled water, starting with children of kindergarten age.

"So these little people will become our ambassadors in a way," Timofejev said. "We also have public water taps all over the city, and at all the major sporting events, we always promote the tap water tanks, just to get rid of the nasty plastic bottles that we see all around the globe."

"Today, 90% of our customers prefer tap water to bottled water, which is a great success," Marosov added.

"It is really important to invest in the environment. Invest in your assets. Invest in quality. Invest in people. If you invest in them today, they will work for you."

FUTURE DEVELOPMENT OF WATER AS A SOURCE OF **CONNECTIVITY**

Experts gathered at the Estonia pavilion for an insightful panel discussion on water as a source of connectivity, with topics ranging from food waste to the use of emerging technologies.

Vuk Perovic, Director of Serbia's Port Governance Agency, said reducing food waste is an international challenge, especially relating to farms, which often use more water than necessary in food production.

Ports are key in global connectivity, he said, and waterways provide the most environmentally friendly type of transport. Vessels can carry 1 tonne of cargo four times further than trucks with the same energy consumption, Perovic explained.This will hopefully lead to an increase in this means of transportation.

Additionally, waterway transport is the most reliable mode in times of crisis, as witnessed during the pandemic, when river traffic increased.

Public-private partnerships are key to moving forward, whether in digitising or helping people around the world access safe water, Perovic added. Preserving the planet is essential to its survival and to creating better economic conditions globally.

Farrukh Hasan, Siemens Executive VP of Process Automation in the Middle East region, discussed the challenges of fresh water access, saying it required disruptive technologies. Just 3% of the world's freshwater is accessed cost-effectively, he noted.There is a need to deploy technology to reduce costs across the water cycle, from production to distribution.

"We as a collective need to encourage the growth mindset, foster disruptive ideas, and enable digital transformation."
FARRUKH HASAN

KEY POINTS

- Farms must adopt better technology to manage water wastage
- Technology will be critical for solving farm water waste
- Corporate change is key to addressing water challenges
- Companies must better educate employees to ensure a holistic change

Sharing insights from Saudi Arabia, he told the audience of the kingdom's plans to improve its water reserves. Vision 2030 includes a national water strategy under which Saudi Arabia should have seven days of water storage capacity by 2030.

To achieve that, the country must develop desalination auto plants based on reverse osmosis technology with a digital aspect to minimise the loss and increase leak detection.

"Previously, we had to detect failures, but now we must predict them," Hasan said.

TECHNOLOGY IN THE FARMS OF THE FUTURE

With the world population expected to reach 10 billion by 2050, ensuring farm-to-table food for all requires smart farming and smart irrigation. This means collecting data about environmental conditions and defining the nutrients, light and food required for optimal growth.

Hasan predicted that robots will be used in the farming systems of the future.

"We as a collective need to encourage the growth mindset and foster the disruptive ideas and enable the digital transformation," he said.

Satellites will also be a key part of this, according to Antti Syrjanen, VP Portfolio Management,Thuraya. Technology helps understand the management of resources better, such as how much water is being used and where and how efficiently, he explained. Such data can be channelled back to authorities for better management, as is being done in the UAE.

Satellite phones for farmers with such data will be a more common tool in the future, but ensuring access to this technology remains the challenge. Syrjanen said it is time to do things differently in order to get different results and see meaningful, impactful change.

Rishi Bhojwani, Service Director at Wilo Middle East FZE, agreed, adding that energy efficient pump systems must support this.

"We're always trying to push the boundary in terms of water management," he said.

Water scarcity is a problem for SMEs and large organisations alike. A strong corporate mandate is important, so seeing more chief sustainability officers brought into companies is a step in the right direction, he noted.

"There is no better time to start educating - we need a creative mindset and a holistic approach. It has to start from within, educating each of the organisation's employees."

SPEAKERS

VUK PEROVIC
Director
Port Governance Agency of the Republic of Serbia

FARRUKH HASAN
Executive VP, Process Automation Middle East
Siemens

ANTTI SYRJANEN
VP Portfolio Management
Thuraya

RISHI BHOJWANI
Service Director
Wilo Middle East FZE

MODERATOR

HAZEL JACKSON
Chief Executive Officer
Biz Group

KEY POINTS

- The oceans play a crucial part in food security
- Preserving the oceans is essential for achieving the UN Sustainable Development Goals
- Satellite technologies can help governments identify oil spills, natural disasters and illegal activities
- Greater cooperation is needed to save the world's oceans

SPACE TECHNOLOGY FOR SUSTAINABLE OCEANS

The world's oceans hold the key to reaching many of the UN's SDGs, Ole Johan Sandvær, Commissioner General of Norway, said in his opening.

"The oceans are vital for combating climate change, [so] they need to be monitored and protected," he said, highlighting the crucial role space technologies can play in this pursuit.

"Space technologies and services are important instruments for improving the condition of the oceans. We can monitor changes, and we can see trends. From space, we read temperatures, we monitor melting glaciers, we detect illegal fishing, pollution, oil spill[s]. We control marine traffic, and satellites provide vital security information and more," he explained.

However, making real use of these technologies requires dialogue and international cooperation.

"The future of our oceans depends on the world's ability to cooperate. Many ocean-based industries have the potential to outperform the growth of the global economy both in terms of additional revenue and employment, " Sandvær added.

SATELLITES ABOVE THE OCEAN

In his presentation, Rob Ayasse of Kongsberg Satellite Services (KSAT) demonstrated the use case for satellite imagery in monitoring ocean activity.

"We are in the fight of our lives to protect the earth from irreversible environmental harm. There are space-based assets that can be absolutely crucial in that fight," he noted. "There are a lot of assets in orbit that can be used for operational maritime monitoring. It is a mix of both SAR [synthetic aperture radar] and optical sensors."

These technologies, alongside automatic identification system data and radio-frequency detection, can help monitor oil slicks and the vessels responsible for a spill incident and identify illegal fishing.

"It doesn't help you much if you have all of this SAR and optical or radio-frequency imagery or light imagery; what you need is to be able to get that information quickly enough to be operationally useful.You do that by having the world's largest and best positioned network [of] ground station antennas," Ayasse said. "The next space-based asset is actually on the ground, and it is the antennas we need to get that information and get it processed."

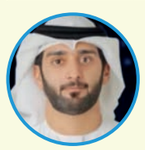
"The future of our oceans depends on the world's ability to cooperate."
OLE JOHAN SANDVÆR

SPEAKERS

OLE JOHAN SANDVÆR
Commissioner General, Norway

ROB AYASSE
Vice President Earth Observation Sales
Kongsberg Satellite Services (KSAT)

RAMI SAEED
Specialist, Digital Transformation
Abu Dhabi National Oil Company (ADNOC)



ABDULLA AL HAMMADI
Engineer, Applications Development
Mohammed Bin Rashid Space Centre (MBRSC)

PROTECTING MARINE LIFE

Rami Saeed, Specialist of Digital Transformation at Abu Dhabi National Oil Company (ADNOC), presented the use of satellite technologies to respond to oil spills.

The global need for oil is causing pollution in the oceans, so "we need to protect our critical infrastructures, our marine ecologies, [and] the resources with regard to fish farms," he said.

Using satellite imagery, Saeed's team can simulate the movement of oil spills and alert the relevant authorities so they can try to curtail the damage.

"Relying on technology for response is also part of our mandates in technology-driven planning where we use the historical data of the satellites we have received. We know where our hotspots are [and] the most likely locations of spills to occur."

Abdulla Al Hammadi, Engineer, Applications Development at Mohammed Bin Rashid Space Centre (MBRSC), explained how the centre uses its three satellites to better understand the UAE's infrastructure. The most advanced of these satellites is the Khalifasat, whose high resolution allows MBRSC to take "very fine and detailed pictures of the Earth's surface."

"We performed several analyses [of] one of the dams in the UAE, and we can compare imagery [from] different times to study the surface of the water, [whether] it is increasing [or] decreasing. We also study the coastline, and this helps us in project monitoring," Al Hammadi said.

MBRSC also provides International Charter Space and Sentinel Asia with satellite imagery for disaster management. During the floods in Japan in 2020, it supplied satellite imagery both before and after the floods to predict the level of damage in specific areas.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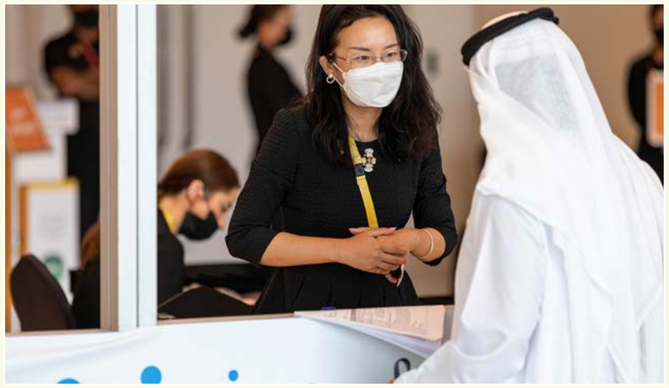




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