

# SOLUTIONS <sup>No 2</sup>

TUESDAY • 12 July 2016



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LIVE COVERAGE @ Sands Expo & Convention Centre, Marina Bay Sands, Singapore

## HONOURING MODELS OF INNOVATION

Medellín wins 2016 Lee Kuan Yew World City Prize, Professor John Anthony Cherry wins 2016 Lee Kuan Yew Water Prize

By Joseph Jones



Prime Minister Lee Hsien Loong welcomes representatives from Medellín, the 2016 Lee Kuan Yew World City Prize winner, and Professor John Anthony Cherry, winner of the 2016 Lee Kuan Yew Water Prize

The 2016 Lee Kuan Yew World City Prize was awarded to Medellín, Colombia in recognition of its extraordinary transformation from being one of the world's most dangerous cities into a liveable and innovative city within a span of just two decades.

The Lee Kuan Yew World City Prize recognises outstanding contributions to the creation of liveable, vibrant and sustainable urban communities around the world.

Medellín was selected from a list of 38 other nominated cities from around the globe.

Meanwhile, world-renowned hydrogeologist Professor John Anthony Cherry won the 2016 Lee Kuan Yew Water Prize for his work in the management of groundwater – the

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## A THREE-IN-ONE OPENING

By Chua Kim Beng

The WCS, SIWW and CESS Joint Opening Plenary boasted panellists from the public and private sectors



Professor Tommy Koh (centre) moderated the second session of the Joint Opening Plenary

The first session, "Leadership and Governance for a Liveable, Sustainable and Resilient Future", was moderated by Dr Chan Heng Chee, Chairman of the Lee Kuan Yew Centre for Innovative Cities at the Singapore University of Technology and Design. On the panel were HE Dr Han Seung-soo, the United Nations Secretary-General's Special Envoy for Disaster Risk Reduction and Water, and Special Adviser to the High Level Panel on Water; HE Mohammed bin Abdullah Al

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### Correction

In "Innovation and Resilience Key to the Cities of the Future" in the 11 July issue of *Solutions*, Singapore's Climate Action Plan was said to mark the steps the city-state is taking to reduce its "carbon emissions by 36%". This should be "greenhouse gas Emissions Intensity (EI) by 36%". In "Port Cities – In Focus" in the same issue, it was listed that the Vice Mayor of Dalian will be speaking. It should be the Deputy Mayor of Yokohama. We apologise for the errors.

## DAILY HIGHLIGHTS

<p><b>Pre-Function Area, Level 5</b></p> <p><b>TOWARDS A SMART AND SUSTAINABLE SINGAPORE</b></p> <p>9.00–17.30</p>	<p><b>Level 1, Basement 2</b></p> <p><b>CITY SOLUTIONS SINGAPORE</b></p> <p>9.30–20.00</p>	<p><b>Sands Grand Ballroom O-J, Level 5</b></p> <p><b>WORLD CITIES SUMMIT PLENARY</b></p> <p>13.30–15.00</p>	<p><b>Begonia 3001B/3101A, Level 3</b></p> <p><b>WATER CONVENTION OPENING PLENARY</b></p> <p>9.00–10.30</p>	<p><b>Melati Ballroom, Level 4</b></p> <p><b>CESS OPENING PLENARY</b></p> <p>9.15–10.30</p>
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## HONOURING MODELS OF INNOVATION

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major water source for over 50% of the world's population.

Speaking at the award ceremony – staged last night at The Ritz-Carlton, Millenia Singapore – in a frank, friendly and far-reaching conversation, Singapore Prime Minister Lee Hsien Loong touched on a number of topical issues, including Brexit (the recent UK referendum to leave the European Union), terrorism and climate change. PM Lee pointed out that Brexit had occurred due to a disconnect between London and the rest of England. "Global cities must strike a balance between domestic cohesion and maintaining a sense of openness," he said.

While acknowledging the importance of environmental challenges, PM Lee argued that for many Asian countries, "climate change is not topmost on their agenda." Similarly, when it comes to terrorism, "no absolute security is possible," asserted PM Lee. While you can take every precaution, you must also "steel yourself for the morning after."

### The Lee Kuan Yew World City Prize recognises outstanding contributions to the creation of liveable, vibrant and sustainable urban communities around the world



Closing the session, PM Lee addressed the issue of ensuring equal Internet access for all ages in Singapore. He drew laughs when he referred to his generation as "digital immigrants. We speak the language, but with an accent."

The night also saw the launch of *A Chance of a Lifetime: Lee Kuan Yew and the Physical Transformation of Singapore*. The book retails at local major bookstores.

## A THREE-IN-ONE OPENING

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Rumaihi, Qatar's Minister for Municipality and Environment; HE Esben Lunde Larsen, Denmark's Minister for Environment and Food; and Mr Peter Brabeck-Letmathe, Chairman of Nestlé SA.

"We see typhoons, cyclones, tsunamis, snowstorms and some cities have managed well. We would like to find out what we can learn from the cities that have succeeded – what sort of leadership and what sort of governance framework is required?" Dr Chan's opening remarks set the stage for the panelists' discussion on water pollution and management.

Before launching into what Qatar was doing to address water sustainability, Mr Al Rumaihi stressed that he was attending "not as a minister, but as a human, because water is one of the most important issues that concern the future of the human race". Meanwhile, Mr Brabeck-Letmathe warned that there was a 20% over-usage of water worldwide, and encouraged delegates to be bold and be part of the political process so that water sustainability stays in people's attention.

Professor Tommy Koh, the Ambassador-at-Large from Singapore's Ministry of Foreign Affairs, moderated the second session, "Partnerships and Collaborations for a Liveable, Sustainable and Resilient Future". While introducing his panellists, Mr Koh quipped that – unlike the first session – his was more balanced in terms of gender. His panellists comprised Dr Joan Clos, Secretary-General of the United Nations Conference on Housing and Sustainable Urban Development; HE Park Won-soon, Mayor of Seoul Metropolitan City, South Korea; Dr Judith Rodin, President of the Rockefeller Foundation; Mr Charles O Holliday, Chairman of Royal Dutch Shell; Ms Isabelle Kocher, CEO of Engie; and HE Laurence Tubiana, French Ambassador for Climate Change Negotiations and High Level Champion for Climate Action.

Before dividing the panellists into groups to handle audience questions, Mr Koh invited Ms Tubiana to share how the deal for COP21 was hammered out. "Paris was possible because we learnt lessons from the past. Secondly, we knew we had to listen to everyone because everyone has something to contribute," she said. "The agreement is just a small part; the problem is implementation," she added.

## VIEW FROM THE FLOOR OPPORTUNITIES FOR WATER COMPANIES ABOUND IN CHINA: SIIC CHAIRMAN

The nation's transition to a high-value and environmentally friendly economy will see rising demand for urban, water and waste management projects



Mr Zhou Jun, Executive Chairman of SIIC Environment Holdings

While much has been written about the ongoing volatility in the Chinese economy and the nation's environmental challenges, what is often misunderstood is how the nation is transitioning its industrial base towards higher-value, more environmentally considerate industries. Furthermore, much of the international coverage about China focuses on its megacities, rather than second-, third- and fourth-tier cities. These municipalities have much need for new infrastructure, and in particular, water management systems.

Speaking to *Solutions*, Mr Zhou Jun, Executive Chairman of SIIC Environment Holdings, said,

"When it comes to water and waste water treatment, the government is trying to raise standards across the board. This means opportunities for investors and enterprises in these fields because there will be an increase in demand for new technologies, new innovations, and new methods to meet those new standards."

Mr Zhou highlighted ecological services in particular. "This area will grow rapidly and much faster than its counterparts in other countries by maybe around 10% to 20% annually. An example is sludge treatment. We produce a lot of it in China and, in past years, we largely send sludge to landfills," he said. "In the future, we can utilise different technologies to treat it. We are expecting more than 300 sludge

factories built across China within the next few years, and that is significant."

Mr Zhou expressed enthusiasm for events like SIWW. "SIIC is one of the biggest water investors in China, and we have a lot of factories and enterprises all over the country. We are also the user of technology and equipment; this is why we are part of the party at SIWW. We want to see the new frontiers in technology, and we want to find potential investment opportunities or partners."

**For more information about opportunities in China, visit the China Business Forum today, 15.30–17.55, to be staged at Basement 2, Expo Hall D.**

WCS

More than  
**80%**  
of global GDP  
is generated in cities

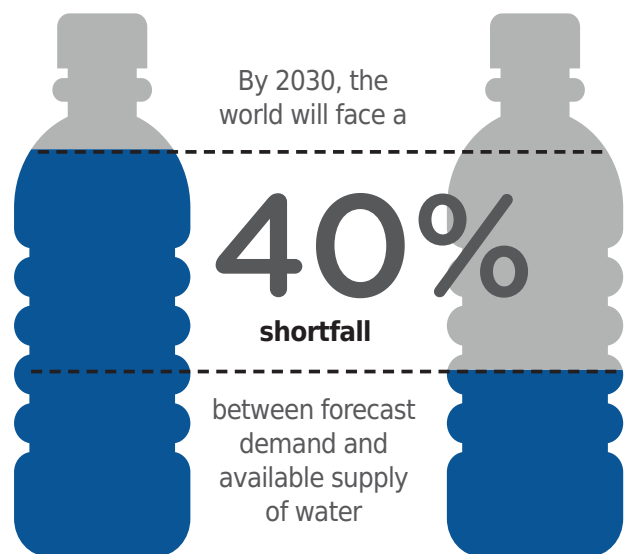


SIWW

By 2030, the world will face a

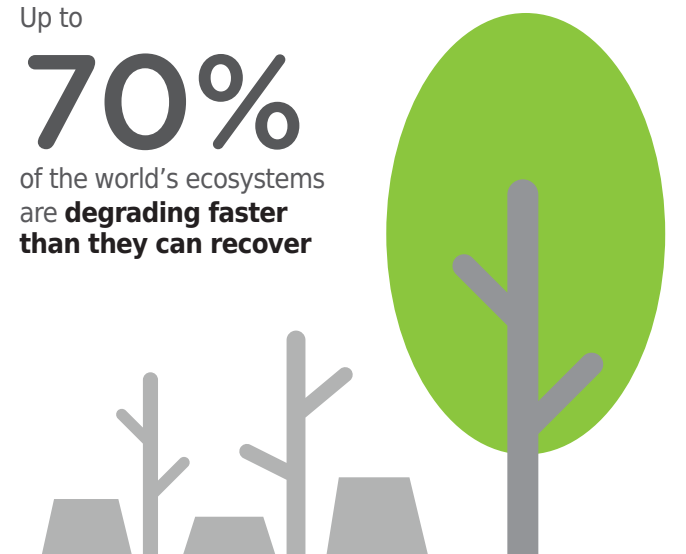
**40%**  
shortfall

between forecast demand and available supply of water



CESS

Up to  
**70%**  
of the world's ecosystems are **degrading faster than they can recover**



Source: The World Bank

# SUSTAINABLE DEVELOPMENT, CLIMATE CHANGE AND SOCIAL INCLUSION

By **Jennifer Eveland**

Creating opportunity for all through technology and innovation:  
In-Conversation with Mr Tharman Shanmugaratnam



(L-R) Mr Tharman Shanmugaratnam, Deputy Prime Minister and Coordinating Minister for Economic and Social Policies, and In-Conversation moderator Professor Tommy Koh, Ambassador-at-Large, Ministry of Foreign Affairs, Singapore

**S**ocial inclusion was the running theme of the In-Conversation session at the opening of the WCS, SIWW and CESS 2016. Under the title "Towards a Liveable, Sustainable and Resilient Future", In-Conversation was the curtain-raiser for the week-long co-located events.

Moderator Professor Tommy Koh, Ambassador-at-Large, Ministry of Foreign Affairs, Singapore, framed the discussion in light of last year's landmark international agreements in New York and Paris to address sustainable development and climate change, and the recent June 2016 British electorate vote to leave the European Union. While he admitted the Brexit vote may seem irrelevant, Mr Koh explained that the outcome reflected the views of people who felt they had not benefitted from globalisation or economic integration, views that are gaining traction in the Western developed world.

Mr Tharman Shanmugaratnam, Deputy Prime Minister and Coordinating Minister for Economic and Social Policies, Singapore, concurred, and noted the challenges and opportunities that have arisen as a result of

climate change, social inclusion and ageing populations, the latter issue of particular significance to Asia's cities.

"We have to find ways in which taking advantage of the open global economy and taking advantage of technology does not mean that some people win and some people lose, and the net result is a zero-sum game," said Mr Shanmugaratnam.

Social inclusion can be enhanced with new approaches to human capital, by investing in people at different stages of their lives, he said, a strategy that can also tap into the potential of ageing members of society.

Innovation, both technological and social, was also highlighted throughout the discussion – how e-government and social media enable accountability, how telemedicine can enhance the lives of the elderly, how electrochemical innovations and biomimicry are making desalination more affordable, and how the sharing economy is improving the efficiency of existing infrastructure and assets.

Fielding questions from the audience, Mr Shanmugaratnam touched upon Singapore's recently revealed climate change strategy, opportunities created by big data and disruptive technologies, and the need for public- and private-sector collaboration.

In conclusion, Mr Shanmugaratnam added, "Our challenge is to be able to keep borders open, make the most of globalisation and take advantage of technology in a way that benefits ordinary people of all ages."

"Fortunately it can be done," he said. "It requires long-term planning, public investment in the right areas and strong collaboration within society between businesses and government, unions and civil society. It is not a contradiction to say that we want a highly innovative and open society as well as an inclusive one."

## GOVERNANCE AND SOUND PLANNING PREREQUISITES FOR SECURING PROJECT FUNDING

By **Amala Pillai**

A robust legal and regulatory framework will do much to encourage investors in cities, water and the environment

**T**he following article is the second edition of a two-part feature on financing urban development, water and environmental projects. The first part was published in issue 1 of *Solutions*.

Globally, the development of urban infrastructure – including water and waste management facilities – is facing a US\$1 trillion investment gap every year, according to the World Economic Forum. While a significant proportion of this gap can be attributed to volatility and uncertainty in the global financial system, other reasons persist.

While there is no single silver bullet to overcoming these challenges, Mr Joris van Etten, Senior Urban Development Specialist at the Asian Development Bank (ADB), believes that exerting robust governance – including transparency and rule of law, sufficient staffing and skills, proper bookkeeping and so forth – and

planning are powerful means to attract financing.

"The public sector can attract greater investment if streamlined procedures are in place to guide processes and projects. Ideally, a government speaks with one voice and provides one common platform to inform, attract, and interact with potential private investors," explains Mr Van Etten.

Cities that are credit-worthy will also begin to attract funds through issuing bonds such as municipal bonds. "Municipal bonds to raise money, primarily for long-lived infrastructure assets are still not very popular in Asia. As of April 2016, ADB has over US\$48 billion outstanding in US dollar-denominated public offerings, some of which we invest in urban infrastructure," Mr Van Etten adds.

The need for a well-planned project is particularly acute. ADB is addressing this

via its Cities Development Initiative for Asia (CDIA) programme, which is aimed at providing project development support. The programme, which is a partnership with the government of Germany, offers support for the development of pre-feasibility studies for key priority infrastructure investments and provides advisory services on possible linkages to these projects for downstream financing for implementation.

CDIA also aims to provide support to project preparatory development activities for loan investments of ADB's operations departments, in areas such as preliminary engineering design preparation and safeguards assessment.

Having a global platform where pertinent issues and ideas can be exchanged and information shared is vital to making a difference in urban infrastructure development – and this is where events like the World Cities Summit (WCS), the

Singapore International Water Week (SIWW) and the CleanEnviro Summit Singapore (CESS) come in. Mr Van Etten notes, "The interaction at events like WCS, SIWW and CESS allows participants to have conversations to get to the crucial aspects that made a positive change in past projects. It is always illuminating to actually hear experts present what they have achieved and how they have addressed challenges in their projects."

Mr Van Etten concludes, "These events provide a rare opportunity to contribute to the creation of new ideas, and to exchange our views on what current and future demands we have to meet."

**To learn more about how cities and other government authorities can attract more investments, attend the "Financing a Sustainable Urban Future" forum, on 13 July 2016, at Sands Grand Ballroom E, Level 5.**





# CONTRIBUTING TO THE FUTURE

By **H. Z. Pang**

The role of the private sector in creating liveable, sustainable cities

The list of sponsor organisations for the World Cities Summit 2016 (WCS) presents a who's who of innovation in sustainable urban development, and represents resounding global support for the WCS event and a commitment to the discovery and implementations of real solutions to the pressing issues cities around the world face.

To make a liveable, sustainable city, it is now widely believed that the goals of all involved parties – the government, their private-sector partners, and residents – must align; 3M Company agrees. Furthermore, 3M Company also says that for a public-private partnership in the urban development arena to be successful, the project must meet unique city-specific infrastructure prerequisites and projects must be designed to maximise public value.

At the other end of the scale, 3M Company also works to provide solutions for urban issues

large and small, ranging from films that can be applied to windows to save energy, to the installation of camera networks to collect data on the movement of traffic. Taken together, we begin to see how private enterprises can contribute to cities that we all want to live in.

It is expected that all cities will eventually become smart cities, but what does this mean for urban infrastructure and urban development? Put simply, a smart city is nothing without connectivity and good networks. Everything from the city's communications infrastructure to payment networks contributes to the development and functioning of a smart city. However, not all smart cities develop at the same pace, and cities may be at different stages of growth and development. At each of these stages, Cisco, Hewlett Packard Enterprise and MasterCard can provide valuable services.



Cisco is in the business of networks. Whether it is providing the physical infrastructure and training people to use these systems, or innovating to develop new ideas as to how these systems can be used, Cisco has a hand in all of it. For the developing smart city, this is a resource not to be ignored.

Hewlett Packard Enterprise too believes that fully connected, networked cities are the future – and it works with cities and governments, providing information technology services, to achieve this goal. In particular, Hewlett Packard Enterprise envisions a future where citizens and governments, and everyone in between, can communicate easily and work together to build a truly liveable city.

MasterCard's global payments network seeks to make cities safer and more inclusive by reducing reliance on cash, make cities more intuitive and efficient by incorporating digital payments into core infrastructure, and make cities sustainable and liveable by employing the power of data. Properly employed, MasterCard's network can have powerful effects on a city.

These are some of the sponsors that will showcase their innovations and solutions to urban sustainability issues at the Sponsors' Networking Night on 12 July 2016.

# URBAN BLUEPRINTS

By **Amala Pillai**

WCS Mayors Forum alumni in their own words



Recently, a number of WCS Mayors Forum alumni from cities around the world shared candid insights about the innovative work they and their cities are involved in. Here are some quotes from their interviews, the questions of which focused on six areas: Developments in the City and Developing Partnerships, Design, Diversity, Disposition, Direction and the Digital Era.

**On developing community engagement for quarterly e-waste collection:**

**"Positive messaging that taps into the community spirit works best for getting a good response to our communications and a higher turnout at our events. We pitch angles that make recycling fun and meaningful."**

– Lord Mayor Clover Moore of Sydney, Australia

**On designing one of the world's most bicycle-friendly cities:**

"We focus on offering alternatives that are plain quicker, better or more comfortable to seduce people out of their cars and into more sustainable urban modes of transport."

– Mayor Bart de Wever of Antwerp, Belgium

**On diversity in his city:**

"Diversity helps to generate a more dynamic, solid economy against the fluctuations of the market. Mixed-use developments and activities favour the creation of new business opportunities, synergies between complementary companies, and the exchanging of innovative ideas that become new opportunities for the city."

– Mr Juan María Aburto of Bilbao, Spain

**On her role as a social justice leader:**

"I am a staunch advocate of gender equality, women's rights and empowerment. I believe that in a true democracy, everyone must have equal access to opportunities for work, self-development and shaping the future of our country. As a woman and as a duly elected official, I am guided by these precepts."

– Mayor Maria Laarni "Lani" Lopez Cayetano of Taguig, the Philippines

**On the future direction of enterprise in his city:**

"In the city, start-ups from all over Japan and overseas are brimming with attractive ideas and technologies. At the same time, existing businesses in the cities are equipped with know-how, capital and marketing outlets. Currently, efforts are being made to strengthen collaborations and establish win-win relationships between the two."

– His Excellency Soichiro Takashima of Fukuoka, Japan

**On the digital era:**

"[Information technology] makes communication between the people and the government easier and more flexible. Furthermore, it can help the city government of Bandung to socialise its working plans and policies, as well as social programmes. The people of Bandung can interact actively in overseeing the city development."

– His Excellency Mochamad Ridwan Kamil of Bandung, Indonesia

The complete versions of the interviews with these mayors as well as those with other esteemed alumni of the WCS Mayors Forum can be found in the Urban Blueprints section on the World Cities Summit website ([worldcitiessummit.com.sg/urban-blueprints](http://worldcitiessummit.com.sg/urban-blueprints)).





# PERSPECTIVES WITH AHMED ABOUTALEB MAYOR OF ROTTERDAM, THE NETHERLANDS

Rotterdam is internationally recognised as an environmentally and socially sustainable city. Despite its many successes, what is the foremost challenge the city faces today, and how are you planning to overcome this?

Like all ports, Rotterdam experiences migration, on both the domestic and international front. Today, we are a city of 174 nationalities, representing all religions and cultures from around the world. A lot of people who have migrated to the city are not highly educated, as they came principally to work in the port. However, to compete with other European cities – particularly in today's knowledge-based economy – we have to invest in human capital. Education is therefore an important priority for the city.

During your time in office, you have notably focused on improving social infrastructure and empowering citizens. Can you share your ideas on how to advance these two areas?

A mayor cannot run a city without the support of its citizens. City citizens have power, they have ideas, they know what is needed in their own neighbourhood, and if you grant them the power to come up with solutions, they will produce very interesting and inexpensive solutions that are accepted by the public.

Starting in 2009, I hold regular meetings with citizens. We meet in a school building or somewhere else of a social nature. I take Rotterdam's chief of police, chief prosecutor and the leaders of the services the city provides, and we ask citizens, "Tell us, do you agree with our vision of the city? If not, please tell us." This has been highly effective in unearthing the things that work, and the things that do not work.

Rotterdam has run a number of successful anti-poverty initiatives. What can other cities learn from your approach to poverty?

Cities cannot overcome poverty if they do not invest in human capital. We cannot accept our sons or daughters of 13 or 14 years old to fall into poverty. Mayors cannot do much for the elder generation in this regard, but we can do a lot to change the situation for their sons or daughters.



**To compete with other European cities, we have to invest in human capital. Education is an important priority**



The best thing cities can do to achieve this is to invest in talent. This could be sports, music or writing. In Rotterdam, we keep our schools open an extra eight hours a week for children to spend more time engaged primarily in maths and languages in order to overcome poverty in the long term.

Which cities do you most admire, and why?

There are many cities I admire, and they all have their own unique qualities as well as challenges. Take New York, for instance; the city's infrastructure is outdated, with a very old subway that has no telecommunications connectivity, the roads are broken and so forth. But New York is a good example of multiculturalism – it says, "Welcome to New York" and has a strong sense of citizenship. There are many angles when judging the quality of a city. There are a lot of good examples on how to move a city forward, so I like to observe the positive qualities of cities and emulate their successes back in Rotterdam.

# DEEP-DIVING DISCUSSIONS

By **Chua Kim Beng**

World Cities Summit delves into four aspects of sustainable city planning that urban centres cannot afford to ignore



Like to indulge in thorough discussions of a topic and assess it from all angles? Wish to hear industry leaders relate case studies and best practices on liveable and sustainable cities? Then sit in on the thematic tracks in the morning of 12 July 2016 at the World Cities Summit.

Four topics will be deliberated. "Mayors Taking Charge" observes novel governance models in urban development and service delivery, and considers how public institutions should interact with the private sector and

civil society. "Can We Make the Cities We Want?" investigates best practices for cities to optimise planning decisions that can help them achieve their desired targets. "Building Resilient Cities and Communities" examines how a city's infrastructure, environment and economy can better cope with different stressors, such as a natural disaster; and finally, "Innovative Solutions for a Smart City" highlights ways in which new technology and social innovations enable urbanites to live comfortable yet sustainable lives.

The four tracks comprise two sessions from 9.00 to 12.30.

## IN THE NEWS

### INNOVATIVE AND CITIZEN-CENTRIC SMART CITY INITIATIVE LAUNCHED IN ASIA PACIFIC

Hewlett Packard Enterprise (HPE) has announced that it will roll out its Future City initiative across the Asia-Pacific region. The scheme, which combines HPE's experiences, best practices, partner ecosystem and technological innovation with a customer-centric approach, aims to make cities more resilient, safer, liveable and connected. "Governments today are

challenged to meet a diverse range of citizen and business demands in an environment where change occurs quickly," said Mr Suparno Banerjee, Vice President, Public Sector Strategic Platforms, HPE. "The extension of HPE Future City to Asia Pacific and Japan will accelerate the development and deployment of solutions that improve quality of life, drive economic growth, and create sustainable communities."

## TODAY'S HIGHLIGHTS

Sands Grand Ballrooms, Level 5

WCS THEMATIC TRACKS

9.00-12.30



Ballroom 5102-5103, Level 5

3RD MEGACITY THINK TANK ALLIANCE FORUM

15.00-18.00



Expo Hall D, B2 & Grand Ballroom G-H, Level 5

CHINA BUSINESS FORUM  
SOUTHEAST ASIA BUSINESS FORUM

15.30-18.00



Sands Grand Ballroom C-D, Level 5

CULTURE: SHOULD CITIES CARE?

15.30-18.00







# PERSPECTIVES WITH GERARDO C. ABLAZA, JR

President and CEO, Manila Water Company



**The Manila Water Company (MWC) has reduced non-revenue water (NRW) from 63% in 1997 to around 11% in 2011. What were the principal drivers of this astounding transformation?**

It was accomplished with three main ingredients: first, clear incentive mechanisms built into our concession agreement with the Metropolitan Waterworks and Sewerage System; second, technical expertise and financial resources of the private-sector

partner; and third, a new system of management, which entailed decentralisation and front-line empowerment.

The key driver for pursuing an aggressive NRW reduction programme was the dual incentive of being able to recoup the expenditures associated with reducing NRW while also being able to convert these efficiency gains into additional billed volume and revenues until the next price review. In 2003 and 2008, these incentives were enhanced by a reward and penalty system that split the benefits associated with reduced NRW between the operator and the consuming public.

MWC undertook a NRW reduction programme, investing in new pipes and meters, and establishing district metering areas and zones based on hydraulic boundaries, among other things. A territory management approach was adopted, where those closest to the ground were made accountable for NRW targets in their district metering areas, and given the authority to make decisions in meeting these targets.

**MWC is also supplying 99% of customers with 24-seven water access, including low-income communities. How was this feat accomplished?**

A similar tack guided the provision of 24-seven water access for 99% of our customer base. Clear targets were established from the start, with timelines for accomplishment and standards of performance. We refer to these as service obligations. Among these was the attainment of 95% 24-seven water availability to a growing customer base. The service obligations are directly tied to our investment programme, which is reviewed every five years. To recoup the investments we spend, we must be able to illustrate how they relate to our ability to meet or miss our service obligation targets.

Complementing this, technical solutions ranging from a redesign of the entire water distribution network to constructing new facilities to improve and optimise system pressure were introduced. The human element too was reoriented to one that rewarded individual performance.

**Tell us more about MWC's inclusive business model, *Tubig Para Sa Barangay* (TPSB, or Water for Poor Communities).**

TPSB is one of our flagship programmes. From a regulatory compliance perspective, for MWC to meet its service obligation targets, it was not enough to focus on the

richer communities in the concession area. From a social perspective, low-income communities were the most vulnerable to the ill effects of poor water services.

Thus, we introduced the TPSB programme. The TPSB programme provides water access to low-income communities, which are often located in informally settled lands owned by the state or private individuals. Normally, such informal settler households cannot be given a water connection. To work around this, MWC introduced the clustered meters concept, where multiple meters are laid down in an array outside the property line and the customers handle the piping directly to their homes. This is complemented by flexible payment terms for the connection fee.

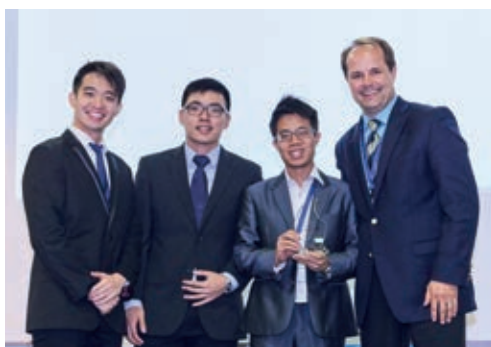
Communities in the TPSB programme have become strong supporters of MWC and help ensure that pilferage and meter tampering in their communities are properly policed. These communities have also become on-the-ground assets in terms of reporting physical leaks in their areas and are among the best in terms of paying their bills in a timely manner.

This programme has benefited over 1.6 million residents of the East Zone since its inception in 1998.

## LIFE'S A PITCH

By **Chua Kim Beng**

The winner of the second Hydro Pitch Day, with what the judges dub the "Most Investment Potential", has been revealed



Dr Steven Kloos (right) of True North Ventures Partners with Team WateROAM (company CEO Mr David Pong is pictured holding the trophy)

**C**ongratulations to the members of Team WateROAM! This Singapore company won the second Hydro Pitch Day, held yesterday. Their idea of a water filtration system operated like a bicycle pump means easy access to drinking water for remote and less advanced communities around the region.

For that, they were named the team with the "Most Investment Potential" by a panel of judges that included Dr Steven Kloos of True North Ventures Partners. "WateROAM has got a great product solution that has got a great price point," enthused Dr Kloos. "Although young and inexperienced, these guys have scar tissues. They have built up relationships with

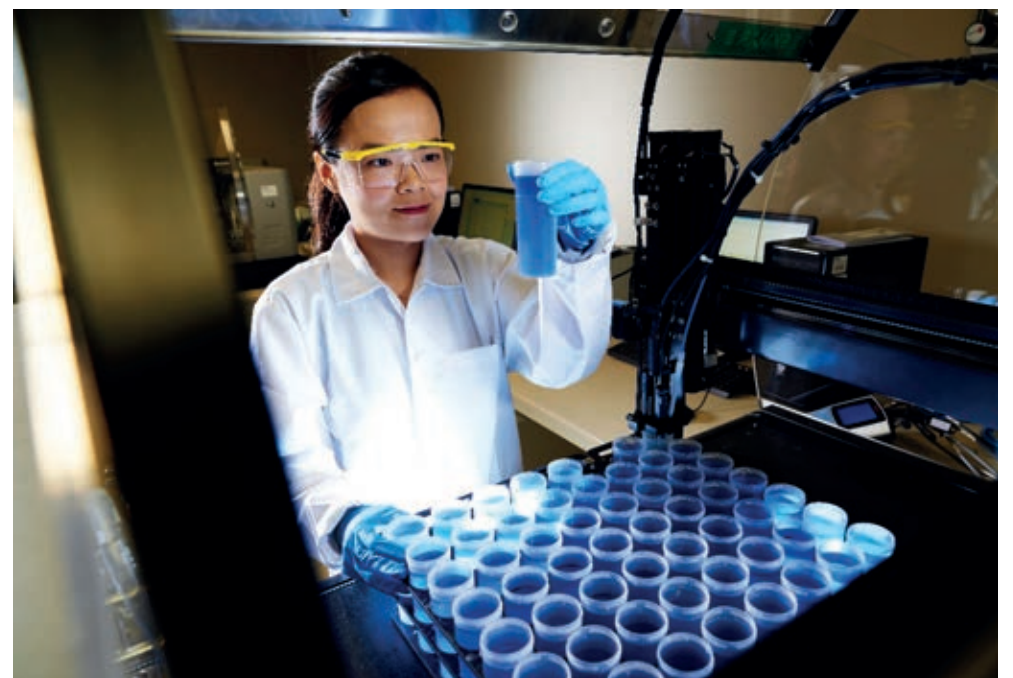
great partners. They know what to do, and these guys are going to be successful."

The winners of the other two prizes in the competition ("Most Disruptive Technology" and "Rising Hydropreneur Star") were Team Electrofonton and Team Biosensorix respectively. Team Electrofonton's technology could potentially treat non-biodegradable wastewater, while Team Biosensorix's biopen would be able to detect toxic compounds in water.

Hydro Pitch Day 2016 saw six teams presenting concepts that have great potential for the water sector in order to find investors to take those ideas to market. In fact, each of these teams already had "at least one provisional patent," revealed Mr Chua Soon Guan, Deputy Chief Executive of PUB, in his welcome address.

Hydro Pitch Day is the culmination of a gruelling six-month journey that started when teams signed up for the HydroPreneur Programme. Successful applicants had to undergo an intensive, fully sponsored entrepreneurship training programme that covered topics such as market validation, customer development, business and revenue modelling, product development, sales and marketing, fund-raising and pitching.

## \$200 MILLION FUNDING BOOST FOR SINGAPORE'S WATER INDUSTRY



**S**ingapore's water industry is growing at a steady pace that looks likely to continue. With an injection of S\$200 million from Singapore's National Research Foundation, the aim is to achieve S\$2.8 billion of annual value-added contribution and 15,000 jobs in the water industry by 2020.

Mr Ng Joo Hee, Chief Executive of PUB said, "The water sector is brimming with exciting

prospects, and as we continue to work with the industry to focus on strategic areas for the next phase of growth, we will build on these achievements, and cement Singapore's status as a leading global hydrohub." PUB and the Economic Development Board of Singapore plan to tap existing strengths in water to develop solutions for the world, accelerate the commercialisation and export of technologies, and build a range of capabilities and talent.





# 13 NATIONS, 1 GOAL

## THE ASEAN PLUS THREE WATER MINISTERS FORUM

By **Howard James**

Sharing common challenges, regional policymakers commit to close collaboration in order to advance water provision across the region



Water ministers and governmental leaders met to discuss foremost challenges affecting the provision of water and other climate change issues

**W**hile highly diverse, socially and economically, the 10 countries that make up ASEAN – namely Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Vietnam – along with China,

Japan and South Korea, share a common goal in providing an uninterrupted supply of clean water for all.

For many of ASEAN members, however, numerous barriers hinder the realisation of

this goal. “ASEAN is particularly vulnerable to the impact of climate change, as much of its population and economic activity is concentrated on coastlines,” said Mr Masagos Zulkifli, Singapore’s Minister for the Environment and Water Resources, at the ASEAN Plus Three Water Ministers Forum. “Rising sea levels may cause widespread flooding in such coastal regions, resulting in the need to resettle populations en masse, and incurring massive expenditures to protect coastlines,” he added.

The minister warned that for an island like Singapore, rising sea levels can be devastating. He also noted that many ASEAN nations rely on agriculture as a significant source of income, which with increased occurrence of natural disasters such as droughts and floods, could threaten food security and communities.

Mr Zulkifli said, “The ASEAN population has been growing at a rate of about 1.3% per year, and is currently more populated than the European Union. ASEAN’s GDP growth has been strong, at 4.6% in the last few years.

This means that across the board, lives will improve and opportunities will be created. But this will only increase demand for water and exert pressure on water resources.”

Dignitaries from other ASEAN countries, as well as Japan and South Korea, agreed there are four pressing areas that need immediate attention – particularly in the region’s emerging economies. These included mitigating uncertainty of supply caused by climate change and growing populations; upgrading inefficient distribution systems, many of which are obsolete; leveraging big data and other analytics technologies to better manage and predict supply disruptions; and the need to form partnerships between governments and the private sector to overcome technological, knowledge, investment and operational shortcomings.

Panelists noted the relevance of sustainable water provision in realising core aspirations from the ASEAN Economic Community (AEC), which was launched in late-2015, namely the establishment of a competitive economic region, and a region of equitable economic development. Furthermore, dignitaries also highlighted the importance of robust water management in achieving the association’s AEC 2025 development goals, which include a highly integrated and cohesive economy; a competitive, innovative and dynamic ASEAN; enhanced connectivity and sectorial cooperation; and a resilient, inclusive, people-orientated and people-centred ASEAN.

“There is no free lunch when it comes to addressing sustainability challenges,” warned Mr Zulkifli. “For instance, producing water from weather-dependent sources such as NEWater [recycled water] and desalination comes with a trade-off in energy dependence.”

“Going forward, we will continue to plan ahead of time, integrate our systems, and address future challenges,” he added.

## IN THE NEWS

### SINGAPORE-AMSTERDAM TO SHARE KNOWLEDGE

**S**ingapore’s national water agency PUB and Waternet, Amsterdam’s water cycle company, have signed a Memorandum of Understanding (MoU) to exchange knowledge and learn from each other’s experiences throughout the entire water cycle, including used water treatment. Among others, HE Jacques Werner, Ambassador to the Netherlands in Singapore, witnessed the signing.

### GE AND PUB TO COLLABORATE OVER NEXT 5 YEARS

**G**E and PUB, Singapore’s national water agency, have inked an agreement to explore ways of technological cooperation, research and development, applied research and training as well as project collaboration over the next five years. Common areas of interest include water treatment processes and industrial water processes, such as water recycling.



PUB and Waternet signed a MoU to exchange knowledge and learn from each other’s experiences

## TODAY’S HIGHLIGHTS

Heliconia  
3401A, Level 3

**WATER LEADERS  
SUMMIT ROUNDTABLE:  
“FUTURE OF WORLD’S  
WATER”**

8.00-9.30

Expo Hall F,  
Basement 2

**SMART WATER  
FORUM**

14.00-17.30

Heliconia  
3401A, Level 3

**WATER LEADERS  
SUMMIT CLOSING  
SESSION**

11.30-12.45

City Solutions  
Singapore, P-14,  
Level 1

**LAUNCH OF  
SINGAPORE WATER  
ACADEMY**

13.30-14.00





# ENVIRONMENT @ CITY SOLUTIONS SINGAPORE

By **Jennifer Eveland**

Reaching out to Singapore and beyond



VRM Biologik's biological alternatives for controlling odour at the Environment @ City Solutions Singapore 2016 expo

**A**t the Environment @ City Solutions Singapore (CSS) 2016 expo, CESS showcased their solutions and services to potential buyers from the environmental management and clean technology sectors.

The expo has proven to be an important marketing platform for first-time exhibitor VRM Biologik, high-quality microbial formulations provider.

"CESS has a confluence of government bodies, our industry competitors and other corporates that buy from us, and we had all started to gather in this space even before the event started," said VRM Biologik representative Mr John Ang. "We have seen people begin three- and four-party conversations that have spilled over today and probably tomorrow, too."

For construction company Wong Fong Engineering, CESS is the main biannual exhibition for the company to showcase its waste management and environmentally friendly products, said project manager Mr Nicolai Alexander Schies. "Most of the main players in the Singapore market are here. When I walk around, I know everyone and it is a good place for networking and making connections within the industry."

Renee Mison, CEO at Eco-Wiz, a food waste management solutions provider with business across Southeast Asia, India and China, reported a busy stream of interest all morning, with potential projects from customers in Myanmar, the Philippines and Malaysia. "This is our third time at CESS," she said. "This is a very good platform for us to outreach to distributors and agents, to develop and open overseas markets."

"This is our second exhibition at CESS and we are one of the founding sponsors of the exhibition," said Mr Akio Yoshinari, president of DOWA Eco-System, which provides a suite of comprehensive environmental services.

"We aim to contribute to environmental solutions in Southeast Asian countries," he said, so participating at CESS is an important part of this company's strategy for expansion in the region.

"CESS gives us a lot of exposure and reach to our target groups," said Ms Veron Chew, marketing and product manager at cleaning technology provider Kärcher. "We are an international platform but have a strong presence in Singapore and the region. Hence, we can pass on any leads we get during CESS throughout our network."

## PERSPECTIVES WITH EUGENE TAY

Director at Green Future Solutions

**What are the more pressing waste management issues in Asia?**

Waste is often not a sexy topic. Usually cities and governments focus on water and climate change, and not so much on waste. So I think it is time to look at waste. Waste can be returned to the economy in the form of nutrients or materials, and it can be reused or recycled. The circular economy is timely – it is turning waste, an unpopular topic, into something of a higher profile.

**Like you said, waste is not a particularly sexy topic. What are the challenges in changing the perception of waste?**

Cities face multiple challenges, but they cannot handle everything at once. They focus on things like water, energy and, increasingly, climate change. But now the focus has to be on waste as well. Waste, most of the time, is the end of something – it gets thrown somewhere. So the challenge is in making it part of everyday life.

**Are there any private or public initiatives that impress you, and why?**

The National Environment Agency has a food waste trial at hawker centres and that

is a good step towards looking at how we can manage food waste better. For the private sector, companies in food and beverage, as well as the hospitality sector are also looking at solutions to reduce food waste. But I think more can be done on the business side. I also think we have a lot to do in terms of engaging residents to recycle their household waste. Our household recycling rate is only 19%, and we have a target of 30% by 2030, so we still have a long way to go.

**Is the engagement of the public still the biggest challenge to close that loop?**

To realise the circular economy, you need to close the loop. All sectors need to work together, because if one part is missing, it becomes impossible. You must have residents and consumers doing their part – whether it is reduce, reuse or recycle – as well as companies with new business models.

**Is there any part of closing the loop that needs to be focused on?**

I think business is one key part, because they are the ones reusing some of the materials – they turn waste into resource. The government can put in place regulations, people can do their part, but without



**The circular economy is timely – it is turning waste, an unpopular topic, into something of a higher profile**



businesses, you cannot close the loop. Companies need to ensure that their business model does not just involve selling products and services to customers; it involves taking back used items and remanufacturing it.

**How do you motivate businesses to engage in the circular economy?**

It has to make business sense for them. Increasingly, businesses are grasping the

business case. Companies today understand challenges like climate change, which affects their sourcing of raw materials. If they can control their supply of raw materials, they can rely less on raw materials and the fluctuation in prices. Turning waste into raw materials means they can manage the whole supply chain.

**From your time at CESS, is there anything you see as the key takeaway at such events?**

In his speech, Deputy Prime Minister Tharman Shanmugaratnam mentioned inclusive growth, which is a key thing. These days we talk about big data and the Internet of Things – in a word, technology. All these are good if they serve customers and consumers of technology. Another key thing is collaboration, getting citizens more involved in the process, so that they can benefit from the technology and help to shape the technology. In addition, it is necessary to manage the process of change, ensuring that it is not just rich people who benefit from big data, but everyone.





# TECH TO TRANSFORM ENVIRONMENTAL STEWARDSHIP

At a *Solutions* roundtable discussion, leaders from two environmental technology providers talk about technologies, government policies and how to attract greater financing

**What environmental technologies are potentially disruptive? Why?**

**VP:** The recent technological advances in renewable energy are likely to transform the way we manage natural forces – for instance, solar and wind – and increasingly waste, which is accelerating at a very fast pace (total waste generated in Singapore increased by 61% from 2000 to 2014).

**KS:** Technologies that boost overall optimisation. Examples include operations governed by AI (artificial intelligence) using individual information, and recycling systems that incorporate cascading (this principle gives higher priority to reuse and recycle of products and raw materials, with energy use as a lower priority).

**Getting citizens, businesses and industry to dispose of waste responsibly continues to be a challenge in many countries. What technologies can help make responsible waste management easier, and what can authorities do to spread the perception of waste as a valuable resource?**

**VP:** Early education, mindset transformation and technology are required to increase the cost-effectiveness and sustainability of waste management. From a technology point of view, there are some innovative sorting technologies that might help this cause.

**KS:** It is vital to raise awareness about the importance of the environment and the need for responsible waste management. Strict regulation and user-friendly waste collection systems – collection points that are open 24-seven, for example – might encourage uptake as well.

**The environmental industry is not short of innovation, yet most new ideas**



(L-R) Mr Vincent Poo, Group CEO of WIS Holdings (VP) and Mr Kenichi Sasaki, President of Dowa Eco-System Co Ltd (KS)

**struggle to obtain adequate funding. What can the environmental research and development (R&D) community do to attract greater sources of funding?**

**VP:** While the government is generally supportive of innovation from a funding perspective, more can be done. Currently, funding is still very much focused on the local Singapore context, which makes it unattractive for private companies that need large economies of scale (e.g. the global market) to justify major R&D investment.

**KS:** A crowdfunding system that allows individuals to invest in innovative technology should be established. In Japan, there is a similar system known as the "Bellmark system". Certain products on the market are marked with a Bellmark symbol that shows how many points the product is worth (usually between one to eight points). When consumers buy these products, the points translate to a one-yen donation per point. These donations are funnelled to schools, to purchase teaching materials and equipment.

**What current environmental technologies do you particularly admire, and why?**



**VP:** Solar power technology. Despite being around for decades, solar power did not take off due to lack of infrastructure and high costs. However, years of perseverance seem to be paying off with discovery of better materials such as perovskite. These are exciting times for solar power.

**KS:** Space solar power station/satellite (SPS) and microwave power transmission. These gather solar energy in space and convert it to microwaves to be transmitted to Earth, where it is in turn converted to electricity. SPS enables stable solar power generation round the clock.

**What is the benefit of attending CESS for firms like yours?**

**VP:** CESS allows players in the industry to share and to learn from one another, which ultimately benefits the global drive towards an eco-friendlier planet.

**KS:** Dowa aims to help solve environmental problems with our experience in the field of waste management and recycling in Japan. To this end, CESS is an opportunity to share information and learn from others.

## 60-SECOND INTERVIEW WITH JOHN ANG

Managing Director of VRM Biologik



**Management of food waste is a big challenge worldwide. What are the foremost issues in organic recycling?**

We see the biggest issue in organic recycling as the general lack of value being added back into the final product from the various recycling practices being carried out today. Until the value of the final product justifies the investment in building waste management systems to deal with harder-to-process food waste, the widespread adoption of food waste recycling will always be a challenge.

**A common problem is the public's perception of waste as something useless, when the opposite is often the case. How can municipalities change this?**

Constant and consistent outreach is usually the best way to get businesses and communities comfortable around the concept of waste. Too often, waste is simply not discussed, and hidden away instead.

**What technologies do you see as being potentially disruptive, and why?**

The ability to solve biological problems with biological solutions is potentially disruptive along the entire waste management value chain. Imagine a city where waste is pre-treated with a biological solution instead of a chemical one. Not only does the biological and chemical demand on the system from cleaning drop tremendously, this waste now becomes an incubation zone for even more "good bacteria", and this waste now ends up treating other parts of the system as it moves through it. The infrastructural requirements could be a tenth of what it is today!

**A recurring challenge to the waste and environmental sector is access to private funding. What can be done about this?**

In today's funding environment, particularly for companies in the waste and environmental sector, it is not enough to have a good business plan. Both products and projects must carry clear social and/or environmental benefits in order to attract private funding.

**How does CESS benefit firms like yours?**

CESS allows us to meet a cross-section of our clients in a common setting, and we see tremendous value in bringing multiple parties into the conversation, especially when they do not usually cross paths.

*VRM Biologik will be embarking on a venture with Pergas Investment Holdings to form a Halal hub in Singapore to research and implement halal principles in farmland management and food processing from the ground up. The MoU signing will take place at the VRM Biologik booth, Level 1, F15, at 11.00 on Wednesday, 13 July 2016.*

## TODAY'S HIGHLIGHTS

Melati Ballroom,  
Level 4

3R PACKAGING  
AWARDS 2016

8.30–9.15



Melati Ballroom,  
Level 4

SMALL ACTIONS,  
BIG IMPACT:  
SHAPING MINDSET  
& BEHAVIOUR

11.00–12.45



NEA Pavilion,  
Level 1 Expo Hall

INNOVATION  
PITCH

10.00–12.30





# SMART NATION SINGAPORE – PART 2

By **Jennifer Eveland**

High-tech solutions for big problems



*This article is part two of a three-part series on Singapore's Smart Nation initiative, and takes a closer look at the specifics of smart technology in Singapore. Part three will focus on the nation's efforts to share innovations and solutions with the global audience.*

Urban density, an ageing population, healthcare, mobility and energy sustainability challenge Singapore's planners, who have turned to high-tech answers through big data and analytics technology and next-generation sensor networks. Smart Nation, an initiative unveiled by Singapore Prime Minister Mr Lee Hsien Loong in 2014, will put in place the technological capabilities to address these problems at a national level, and build a critical mass of experts and enterprises.

Smart Nation's anchor is the Smart Nation Platform (SNP), flexible and scalable infrastructure with a common technical architecture that will allow for pervasive connectivity, data collection

and data sharing among citizens, industry and government.

The SNP has three primary focuses: Connect, Collect and Comprehend. Connect builds on Singapore's existing nation-wide wireless and ultra high-speed optical fibre networks, adding infrastructure to connect over 1,000 sensors and technology that will allow seamless switching of data transmissions.

Collect and Comprehend will see the deployment of an operating system that will let public agencies protect, manage and share data, which can then be analysed to reveal insights that will result in more responsive and anticipatory public services.

From this platform, government leaders will gain a greater understanding about the specific challenges that affect the country's wider issues, and develop policies and programmes that will make the city more liveable.

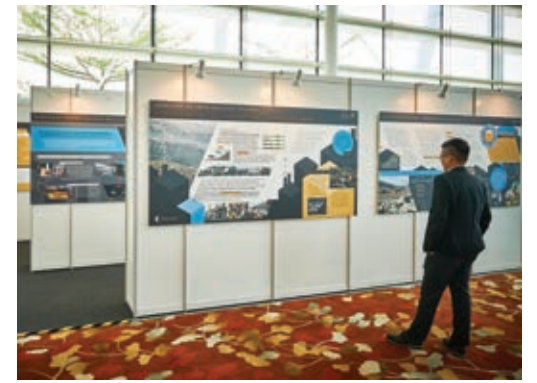
Smart Nation's most obvious applications are in mobility, with the development of a seamless transport

system with new travel options and greater access to real-time information so that commuters can maximise public transportation. Singapore is also currently testing self-driving vehicles for possible deployment around the city. Public housing is another area where smart technology will enhance lives through elderly monitoring systems and utility management.

Smart technology has applications in water and waste management as well, enabling Singapore to adopt smart water technologies for greater efficiency in the management of water resources, from operations to planning and service delivery, and even flood management.

In waste management, automated food waste tracking systems can help food companies and restaurants monitor and reduce waste while automated optical scanning technology can sort plastics into separate streams for processing into high-quality recycled products.

**Visit the "Towards a Smart and Sustainable Singapore" Pavilion today, on Level 5, 9.00 to 18.00.**



## BUILDING RESILIENT CITIES

Expo helps urban planners prepare for disasters

**G**lobal innovations in disaster preparedness are on display at the "Catalysing an Urban Resilience Movement" exhibit at the World Cities Summit Expo from 10–13 July.

Organised by 100 Resilient Cities and Rebuild by Design, the exhibit is based on the work of the two organisations to change the way cities plan for, recover and thrive in the face of extreme disasters and chronic stress.

Rebuild by Design is a revolutionary response to emergency preparedness developed in the wake of Hurricane Sandy in 2012. The competition brought together designers, researchers, community members and government officials, who collaborated to create 10 visionary design proposals that addressed resiliency at physical, social and ecological levels. The programme was so successful that seven of the 10 projects are being implemented in the Northeastern United States, and US President Barack Obama launched the National Disaster Resilience Competition in 2014 based on the programme model.

The success of the Rebuild by Design programme also inspired a global multiphase resilience design competition in 2014. Supported by the Rockefeller Foundation, Rebuild by Design and 100 Resilient Cities have been working around the world to usher in an urban revolution for a more resilient future.

The exhibit explores their projects worldwide.

**Read more about Henk Ovink's insights in Urban Solutions Issue 9. Download at [clc.gov.sg](http://clc.gov.sg).**



## NEW WAYS TO CLEAN WATER

VEOLIA'S WATER SOLUTIONS AT SIWW

**T**he topics of water and waste are increasingly dominating the agenda of public policymakers and private enterprise alike. At SIWW, Veolia showcased some of its latest technology offerings, including its new cooling system solution, the Hydrex AquaVista.

Other Veolia products being demonstrated at SIWW included Actiflo, a high-speed clarifier that utilises micro-sand and polymer to treat both process water and wastewater, and Biobed Advanced Technology, an anaerobic waste water reactor.

Acknowledging that the world is today facing increasing environmental and water scarcity challenges, Mr Frédéric Théry, CEO of Veolia Water Technologies South East Asia commented, "We look forward to sharing more about business sustainability in a world with limited resources."



# THE BIG INTERVIEW

*Solutions* newspaper speaks to Dr Han Seung-soo, UN Secretary-General's Special Envoy for Disaster Risk Reduction and Water, and Special Adviser to the High Level Panel on Water



Dr Han Seung-soo, UN Secretary-General's Special Envoy for Disaster Risk Reduction and Water, and Special Adviser to the High Level Panel on Water, was one of several prominent speakers at the In-Conversation and Opening Plenary, held yesterday morning

**In your view, what are some of today's most pressing water issues? How significant are they, and what can be done to overcome these?**

During the last decade, water-related disasters have not only occurred more frequently, they have also been more severe, causing political, social and economic upheaval in many countries. Such water-related disasters, including floods and droughts, storm surges, tsunamis and cyclones, account for more than 90% of all disasters in terms of human loss. So the issue of water disasters must be addressed.

Ultimately, we need to be better prepared when water disasters strike, and be more resilient. To do this, we must share our experiences and the lessons learnt. We must also strengthen regional and

international cooperation, and set common goals and targets in order to lay the foundations to overcome water-related disasters at all levels.

**As a former Prime Minister of the Republic of Korea, you have first-hand experience at rolling out policies designed to better manage a nation's water resources. What are some of the challenges that governments face when devising such policies? During your time in office, how did you and your administration handle these matters?**

While in office, we had numerous matters to deal with. However, three challenges particularly stand out.

First, changing the mindset of officials and the bureaucracy from "business as usual" to encourage the adoption of innovative

**We need to be better prepared when water disasters strike, and be more resilient. To do so, we must share our experiences and the lessons learnt. We must also strengthen regional and international cooperation, and set common goals to lay the foundations to overcome water-related disasters**



solutions and a "think out of the box" approach. Second, scaling up good practices from those designed for cities, to solutions that can work nationally. And third, convincing the public to think differently about water. In my experience, changing the mindset of people is of paramount importance when rolling out policies designed to better manage water.

**In your view, what can governments around the world do to attract more private-sector investment, particularly in light of the challenges ongoing in the global economy?**

Governments must promote risk-sensitive investment. They should adopt the perception that disaster risk reduction is an investment for the future. At present many people consider this a cost, when in actual fact it is the basis for development.

This is because it is costly to rebuild a city after disaster has struck. By definition we cannot afford not to address this issue. It will be too late to do so once disaster has struck.

**What current technologies do you see as being of greatest value to prevent disasters, and why?**

There are several technologies, but one promising area is satellite-based hydrological observation networks. This is because it is better to reduce the impact of risks, rather than take action after disaster strikes. In order to mitigate the risks, it is first necessary to know what is coming in the future. In that respect, these hydrological observation monitoring systems can be of tremendous help.

The second technology is large-scale water desalination technology. This has helped many people living in desert and drought areas. Of course the technology is very expensive, but it is an extremely effective means of providing water to these types of locations.

And last, I believe big data will play a very important role in the future, by allowing us to predict potential disasters through analytics and modelling.

**What are some of the benefits of events like SIWW to water leaders and other industry practitioners from around the globe?**

In order for the water industry to advance, there are numerous barriers to overcome – for instance, policymakers seldom understand scientific innovation, and they do not always appreciate the high costs of water technology. Events like SIWW, where policymakers from around the world and the water industry gather to discourse and network, can provide a great opportunity to move forward. In that respect, I am really happy to take part in these activities.

## INVESTING IN A NEW, GREENER WORLD

CLIMATE CHANGE REQUIRES GREATER INVESTMENT



Climate change is currently one of the biggest issues facing the world, which makes the release of the joint Siemens, C40 and Citi report, titled "New Perspectives on Climate Finance for Cities", extremely timely. The report discusses the wide variety of challenges involved in financing sustainable infrastructure in cities.

Among its findings, the report estimates that approximately US\$57 trillion needs to be invested in city infrastructure

from now until 2030. Financing this investment will require a global effort by national, regional and international groups.

The report considers potential financing options for climate change programmes in cities, and discusses the lead times and steps required to access different types of climate finance. It also delves into some of the important lessons learned from cities around the world.

## TODAY'S HIGHLIGHTS

Level 1,  
Basement 2

**CITY SOLUTIONS  
SINGAPORE**

9.30 – 20.00







SEEN@ WCS

SEEN@ SIWW



Cities are going to be the centre of the world in the future. We must build more sustainable cities that can fight against climate change - we must build cities for life



Mr Anibal Gaviria Correa  
Former Mayor of Medellin, Colombia



Above: 3M's light control films allow even distribution of light within urban farms



You can implement, say, water safety measures to protect cities - but it is also about social inclusion. Get people involved. It is everybody's problem



Mr Maarten Smits  
CEO, Deltares



Above: PUB's Smart Water Solutions Showcase at the City Solutions Singapore, featuring an array of smart water technologies being implemented as part of Singapore's water management strategy

SEEN@ CESS



In terms of the cleaning industry, the greatest challenge is manpower wastage. I believe that leveraging new innovations and technologies is the way forward



Mr Alan Koh  
Director, Group Financial Controller, WIS Holdings



Above: An impressive booth by Dowa Holdings, one of the Founding Sponsors of CESS

SOLUTIONS

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