

Innovative Clean Enviro-Solutions for Growing Cities

10 - 14 July 2016

Sands Expo & Convention Centre
Marina Bay Sands, Singapore

Post Event Report



ABOUT CLEANENVIRO SUMMIT SINGAPORE 2016



Organised by the National Environment Agency (NEA), CleanEnviro Summit Singapore is the global platform for government leaders, policy makers, regulators and industry captains to connect, examine and discover practical solutions to address environmental challenges for tomorrow's cities. CleanEnviro Summit Singapore 2016 facilitated the sharing of insights on the latest environmental market trends through a myriad of activities including the Clean Environment Convention, High Level Plenaries, Business Forums and the Clean Environment Regulators Roundtable. The City Solutions Singapore Expo and Innovation Pitch showcased the latest innovations in waste management, cleaning, environmental technology and recycling solutions.

For more information, visit www.cleanenviros Summit.sg



What is the most important thing? It is the people, it is the people, it is the people. It is this philosophy that stands behind everything that we do in our city.

HE Len Brown
Mayor
Auckland, New Zealand



THOUGHT LEADERS FROM ALL OVER THE WORLD

The CleanEnviro Summit Singapore 2016 provided thought leadership in the cleaning and waste management issues. It brought renowned speakers and a record number of senior level participants from all over the world, including ministers, mayors, business leaders and heads of international organisations. Some of them were as follows:



HE Tharman Shanmugaratnam
Deputy Prime Minister and Coordinating Minister for Economic and Social Policies, Singapore



HE Park Won-soon
Mayor, Seoul Metropolitan City, Republic of Korea



HE Esben Lunde Larsen
Minister for Environment and Food, Kingdom of Denmark



HE Mohammed Bin Abdullah Mitaib Al Rumaihi
Minister of Municipality and Environment, State of Qatar



HE Laurence Tubiana
French Ambassador for Climate Change Negotiations and High Level Champion for Climate Action



Mr Toshinari Yokoo
CEO
Greenbird



Mr Chris Cracknell
Immediate past Director and Treasurer, World Federation of Building Service Contractors (WFBSC)



Ms Anne M. Germain
Director of Waste & Recycling Technology National Waste & Recycling Association (NWRA), United States



Mr Markus Asch
President
EUnited Cleaning, European Cleaning Machines Association



Mr Eduardo A. Manahan
Chairman
Building Owners and Managers Association of the Philippines (BOMAP)



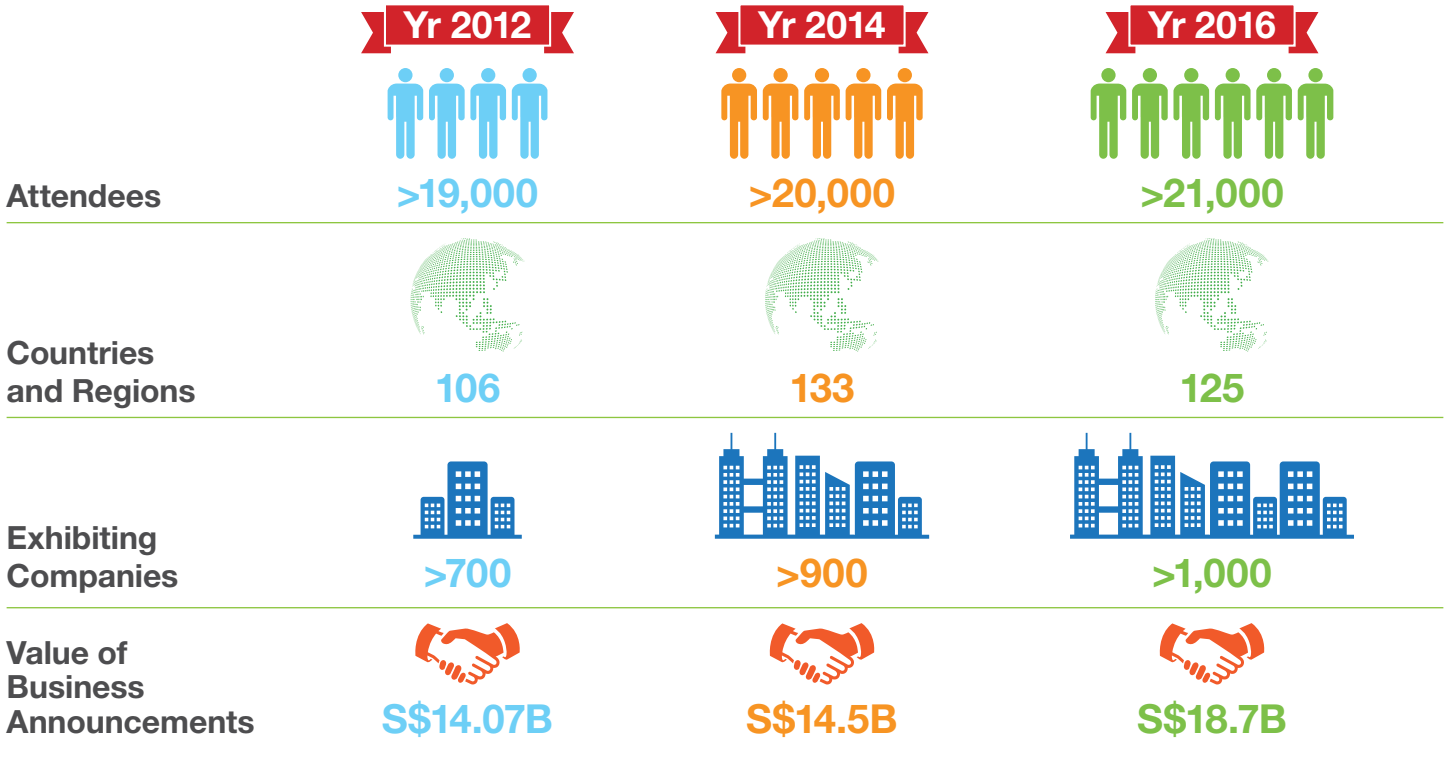
Events like CleanEnviro Summit Singapore provide a global perspective on many of the issues that individuals are dealing with at a local level. The free exchange of ideas sparks dialogue and encourages new ideas that lead to creative solutions and problem-solving.

Ms Anne M. Germain
Director of Waste & Recycling Technology National Waste and Recycling Association (NWRA)
United States



EVENT TAKEAWAYS

Together with the World Cities Summit and the Singapore International Water Week, CleanEnviro Summit Singapore 2016 received over 21,000 delegates and saw S\$18.7 billion worth of projects announced.



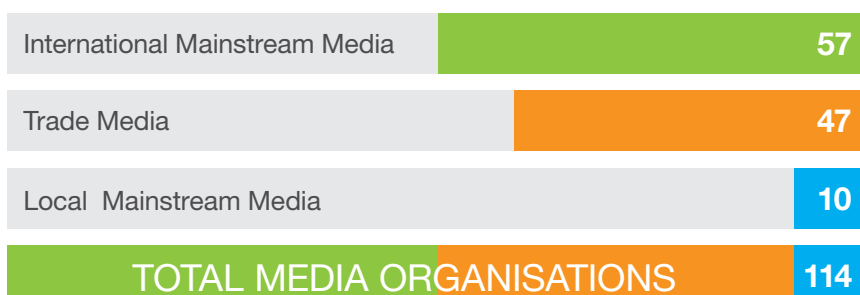
INTERNATIONAL MEDIA COVERAGE

The significance of the CleanEnviro Summit Singapore in bringing together global thought leaders from both the public and private sectors attracted international media from all over the world to cover the Summit.

International broadcasters including Bloomberg and Channel NewsAsia, were on-site to conduct interviews and do live coverage from the Summit. Key speakers and spokespersons were interviewed by Bloomberg, Channel News Asia, BBC and Al Jazeera.

262 MEDIA REPRESENTATIVES
114 MEDIA ORGANISATIONS

>S\$7M MEDIA COVERAGE VALUE



CLEANENVIRO SUMMIT SINGAPORE 2016 - CLEAN ENVIRONMENT CONVENTION

The third biennial CleanEnviro Summit Singapore (CESS) gathered and generated a wealth of knowledge and scalable solutions to address environmental challenges in the context of waste-water-energy nexus in growing cities. CESS discussed current issues and showcased the latest innovations in environmental technology.

Themed “SMART Solutions for Growing Cities”, the Clean Environment Convention (CEC) brought together industry players, international organisations, academia as well as government and municipal authorities.

Over the two-day convention, international and local industry leaders and experts shared insights on industry challenges, discussed market trends and showcased solutions on thought-provoking issues on cleaning and waste management.

The convention opened with a plenary session where government officials and industry leaders from America, Africa, Asia, Europe, the Middle East and Oceania discussed the key drivers, opportunities and strategies to enhance the competitiveness of the cleaning and waste management sectors. They also proposed ways to meet demands and rising public expectations, which were common issues faced by growing cities.

Topics such as building the capability of workers, changing mindset and behaviour, circular economy, waste and building management systems, technological developments and cleanliness standards were explored. Case studies from various cities were also shared.



This is not just a political issue or economical issue. If we don't educate citizens on the moral and philosophical implications of using the world's resources, we won't move the discussion forward.

HE Esben Lunde Larsen
Minister for Environment and Food
Denmark



CLEANENVIRO SUMMIT SINGAPORE 2016

- CLEAN ENVIRONMENT CONVENTION

CEC Session 1

Small Actions, Big Impact: Shaping Mindset & Behaviour

There is a growing need for communities and stakeholders to take ownership of public spaces and appreciate the contribution of workers in the cleaning and waste management sectors. It was discussed that it is essential to shape societies' perception of the important role cleaners and public waste collectors play in keeping public places clean. Insights on how various ground-up initiatives and regulations worked to change public mindset on cleanliness in countries such as Australia, Japan, and Brazil were shared.

CEC Session 2

Staying Competitive With a Smart, Skilled and Sustainable Workforce

It is a challenge to attract and retain talent in the cleaning and waste industries. The cleaning and waste management workforce should continue to upgrade their skillsets. Besides pro-actively improving business strategies to reinventing themselves, as well as leverage technology, such as Global Positioning System (GPS), and Information and Communications Technology (ICT), businesses could also design a clear pathway for career progression. Additionally, they could develop schemes to raise the profile of workers on the cleaning and waste management sectors, and the value of their work as well as train their workforce by equipping them with the appropriate knowledge and tools.

CEC Cleaning Track 1

Disruptive Technology and The Internet of Things: Will It Help or Hinder?

The cleaning industry becomes more sustainable when cleaning machines and equipment are connected to the cleaning workforce, hence, enabling them to carry out their tasks more efficiently and effectively. Such inter-connectivity and seamless communication between the building, cleaning machines and cleaners, will enable cleaners and cleaning companies to focus their cleaning on areas or specific locations where cleaning is needed. The Internet of Things (IoT) helps the industry to ascertain technological trends, and allows for the proliferation of new smart products and services.

CEC Cleaning Track 2

Beyond Surface Cleaning: How Important is Hygiene & Disinfection?

Cleaning and disinfection are critical in maintaining good public health conditions in homes, schools, healthcare facilities and other indoor areas. There is a trend towards professionalisation of the cleaning industry as it adopts cleaning science (e.g. ATP testing), better cleaning techniques with proper tools and chemicals, as well as training for cleaners. Adoption of good hygiene and cleanliness standards also help to raise the profile of cleanliness amongst the population.

CEC Cleaning Track 3

Sustainable Business Models for Better Cleaning Performance

Engagement with service buyers is necessary to understand business needs and establish expectations of service standards. To encourage the adoption of performance-based contracts in the cleaning industry, there is a need for better communication between service buyers and providers. One of the ways that service buyers and providers could establish expectations of service standards and understand business needs is to measure customer satisfaction, and gather data to demonstrate cleaning outcomes and value of cleaning services.



CLEANENVIRO SUMMIT SINGAPORE 2016 - CLEAN ENVIRONMENT CONVENTION

CEC Waste Track 1

Circular Economy For Greater Competitiveness

Several Circular Economy business models such as Circular Supply-Chain, Recovery & Recycling, Product Life-Extension and Sharing Platform were discussed. It was discussed that the economic gains from adopting a Circular Economy approach could produce are significantly underestimated. It is necessary to continue to progressively set sector-by-sector pathways on how companies and consumers could collaborate with the government to see the real potential of Circular Economy.

CEC Waste Track 2

Can Cities Unlock the Resource Potential of Food Waste?

Food waste poses enormous challenges in many municipalities. Globally, one-third of all edible food produced for human consumption is lost or wasted every year. This translates to a loss of US\$1 trillion dollars worldwide annually. A poll conducted during the session revealed that the biggest priority for food waste in Singapore and Southeast Asia is “preventing avoidable food waste”. Food wastage can be reduced, for example through food redistribution to the needy, conversion of food into animal feed, composting and energy conversion, etc. To achieve an effective food waste management system, there is also a need for public education and engagement, as well as strategic industry partnerships.



CEC Waste Track 3

Smart Solutions to Maximise The Value of Waste

The rising cost for waste management has pushed industries to explore smart solutions. Through a combination of one or more smart solutions such as the pneumatic refuse collection system, anaerobic digestion system, and Circular Economy, more waste could be recycled and converted into valuable secondary resources with less reliance on natural resources. Infrastructure planning was cited as an example where a facility’s designer could study the various types of waste composition before determining a facility’s design and selection of technology to comply with regulatory requirements.



In Wales, we have 21 different municipalities, and they all recycle in totally different ways. We need to make recycling as simple as possible.

Ms Kathryn Warren
Principal Consultant
Ricardo Energy and Environment



CLEANENVIRO SUMMIT SINGAPORE 2016 - CITY SOLUTIONS SINGAPORE EXPO

Over S\$18.7 billion worth of business deals were announced at World Cities Summit (WCS), Singapore International Water Week (SIWW) and CleanEnviro Summit Singapore (CESS).

City Solutions Singapore (CSS) Expo that comprised Cities@CSS, Water@CSS and Environment@CSS provided an avenue for water, urban and environmental solutions from different countries to be profiled. With over 31,000 sqm of exhibition space, CSS Expo provided a global platform for companies to showcase new and cutting-edge solutions for waste and cleaning management. It received over 21,000 visitors from 125 countries and regions, and facilitated the development of new partnerships and business opportunities with over 1,000 participating companies.

As an integrated platform, CSS Expo offered an international marketplace of choice for stakeholders across the full value chain of sustainable development.

An eventful week in Singapore that gathered key leaders from across the fields of city development, urban planning, innovative water and environmental solutions, CESS was a successful platform that showcased thought leadership and vital innovative solutions. CESS offered a premium channel to reach a targeted group of decision makers.



CleanEnviro Summit Singapore 2016 is an effective platform for us to explore business partnership opportunities with companies from both the private and public sectors, which will help us in expanding our foothold in Southeast Asia.

Mr Morimoto

Engineer

International Business
Development Department,
DOWA Eco-System Co. Ltd

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CleanEnviro Summit Singapore 2018.
Email info@cleanenviros Summit.sg to find out more today!**

CLEANENVIRO SUMMIT SINGAPORE 2016

- OTHER HIGHLIGHTS



Business Forums

CESS 2016 saw over 1,800 attendees across seven business forums, namely, China Business Forum; Desalination and Water Reuse Business Forum; India Business Forum; Latin America Business Forum; Southeast Asia Business Forum; Smart Water Forum and Water-Energy-Waste Nexus: The Singapore Journey - Deep Tunnel Sewerage System Phase 2 & Integrated Waste Management Facility Business Forum.

At the inaugural Latin America Business Forum, leaders of the region shared their urban, water and environmental challenges and solutions, with a focus on Brazil and Mexico, the two largest Latin American countries.



NEA Pavilion

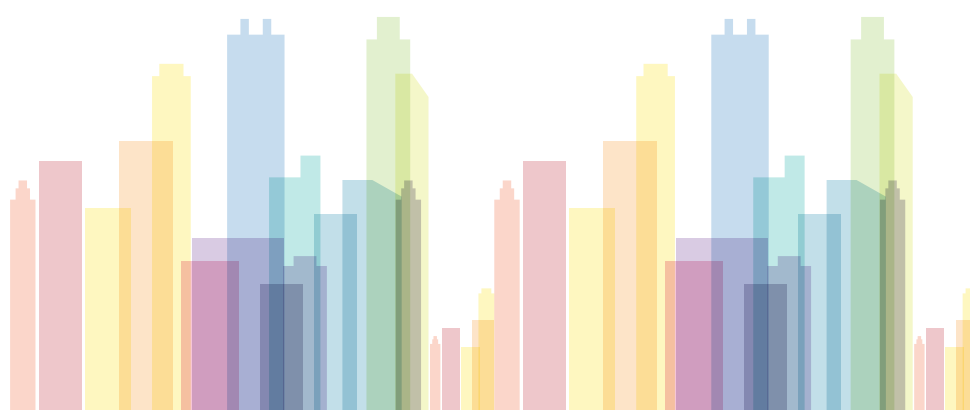
The NEA Pavilion showcased a selection of corporate projects and research collaborations with academia and research institutes. The pavilion featured NEA's efforts in spearheading innovation through the use of cutting-edge technology, creative and inventive solutions, research and development, and local and international collaborations with strategic partners who are at the forefront of their industry.



The CleanEnviro Summit Singapore conference offers a real opportunity for people to understand what else is going on around the world, how they can tap into that knowledge network, share best practices, share the best skills for motivating people, and use technologies and other ways of working so that they can move forward in the way they approach environmental management, waste management and people management within their own countries or communities.

Mr Chris Cracknell

Immediate Past Director and Treasurer
World Federation of Building Service Contractors (WFBC)



CLEANENVIRO SUMMIT SINGAPORE 2016 - OTHER HIGHLIGHTS



Innovation Pitch

The Innovation Pitch featured 10 innovators and their technologies including EcoWorth Tech, Winnow, Intraix and Envichem. Many innovators had novel ways to convert waste to resources such as by obtaining carbon nanotubes from plastic waste, carbon fibre aerogels from cotton waste or paper waste and pure metal from toxic sludge. Others worked on preventing environmental release of contaminants in ash, reducing energy usage in homes, reducing food waste from professional kitchens and bringing environmental sensing closer to hands of the people.

Besides gaining the media's attention, innovators such as LightHaus and BlueRen met with potential corporate investors and venture capitalists. EcoWorth Tech's carbon fibre aerogel technology was also demonstrated to HE Tony Tan Keng Yam, President of the Republic of Singapore.



It was a fantastic networking experience.

Mr Aravind Muthiah
Co-founder
BlueRen



Site Visits

Specially organised learning journeys were hosted by Singapore's public sector agencies for delegates to experience and understand how policies were implemented. CESS site visits included the Semakau Landfill and Tuas South Incineration Plant.



3R Packaging Awards 2016

20 companies were presented with the 3R Packaging Awards, which are given out annually to recognise Singapore Packaging Agreement (SPA) signatories for their notable efforts and achievements in reducing packaging waste. This year's winners include Nestlé Singapore (Pte) Ltd, Tetra Pak Jurong Pte Ltd, Abbott and Coca-Cola Singapore Beverages Pte Ltd.

The SPA was inaugurated in 2007 as a platform for the industry to collaborate with government and non-governmental organisations (NGOs) to reduce packaging waste. The 3R Packaging Awards 2016 were presented by the Minister for the Environment and Water Resources, HE Masagos Zulkifli on 12 July 2016 at the CleanEnviro Summit Singapore. Since the inception of the SPA, the signatories have cumulatively reduced about 32,000 tonnes of packaging waste and saved more than S\$75 million in the process.

For more information on the SPA and 3R Packaging Awards 2016 winners, please visit www.nea.gov.sg/SPA.

ACKNOWLEDGEMENT

Thank you for being a part of **CleanEnviro Summit Singapore 2016.**

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See you at the next summit on
8 – 12 July 2018.
Stay tuned for more details at
www.cleanenvirosummit.sg.

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